SFDA's Product Specific Bioequivalence Guidance

Version 1.1

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Version 1.1

Saudi Food & Drug Authority

Drug Sector

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Saudi Food and Drug Authority

Vision and Mission

Vision

To be a leading international science-based regulator to protect and promote public health

Mission

Protecting the community through regulations and effective controls to ensure the safety of food, drugs, medical devices, cosmetics, pesticides and feed

Document Control

Version	Author	Date	Comments
Draft	Executive Directorate of Benefit & Risk Evaluation	17 November 2020	-
Draft 2	Executive Directorate of Benefit & Risk Evaluation	19 December 2021	This draft is republished in Public Consultation Platform
Version 1.0	Executive Directorate of Benefit & Risk Evaluation	24 May 2022	Final
Version 1.1	Executive Directorate of Benefit & Risk Evaluation		

What is New in version no. 1.1 ?

The following table shows the update to the previous version:

Section	Description of change
Products	**Update:** bioequivalence/ in-vitro studies for 66 products

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Objective:

To further facilitate generic pharmaceutical product availability and to support the generic pharmaceutical industry with identifying the most appropriate methodology for designing the bioequivalence/ *in-vitro* studies, SFDA publishes product-specific guidance describing the Authority's current thinking and expectations on how to develop bioequivalence/ *in-vitro* studies for the generic pharmaceutical product.

Disclaimer: This guidance helps applicants meet the expectations of regulators. This guidance should not be understood as being legally enforceable. The applicant can use another approach if the approach satisfies the requirements of the GCC guideline of bioequivalence.

Definitions:

Bioequivalence:

The absence of a significant difference in the rate and extent to which the active ingredient or active moiety in pharmaceutical equivalents or pharmaceutical alternatives becomes available at the site of drug action when administered at the same molar dose under similar conditions in an appropriately designed study.

Generic pharmaceutical product:

Is a medication developed to be the same as Reference product in dosage form, safety, strength, route of administration, quality, performance characteristics, and intended use.

Reference products:

Pharmaceutical product with which the new product is intended to be interchangeable in clinical practice. The reference product would normally be the innovator product for which efficacy, safety and quality have been established.

Selection of reference products:

Reference Products must be the original brand-name (i.e. manufactured in the country of origin of the original brand name); if this is not available in the local market then the brand-name regarding the same company but different country of origin is used, marketed in GCC region, ICH region, or in any stringent regulatory

authority. If the original brand-name is not available in the market or no longer produced, then the product which is the local market leader may be used as a reference product.

Pharmaceutical equivalence:
Medicinal products are pharmaceutically equivalent if they contain the same amount of the same active substance(s) in the same dosage forms that meet the same or comparable standards. Pharmaceutical equivalence does not necessarily imply bioequivalence as differences in the excipients and/or the manufacturing process can lead to faster or slower dissolution and/or absorption.

Pharmaceutical alternatives:
Pharmaceutical alternatives are medicinal products with different salts, esters, ethers, isomers, mixtures of isomers, complexes or derivatives of an active moiety, or which differ in dosage form or strength.

Active ingredient	Abiraterone Acetate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Abiraterone in plasma. *Bioequivalence based on (90% CI):* Abiraterone. *Background:* Abiraterone considered as a highly variable drug (i.e., within- subject variability ≥ 30%).

Active ingredient	Aceclofenac
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Aceclofenac in plasma. *Bioequivalence based on (90% CI):* Aceclofenac.

Active ingredient	Acetaminophen; Oxycodone Hydrochloride
Dosage form	Extended Release Tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Acetaminophen and Oxycodone in plasma. *Bioequivalence based on (90% CI):* Acetaminophen and Oxycodone.

Active ingredient	Acetaminophen; Oxycodone Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Biowaiver option For more information, please refer “The SFDA guideline for biowaiver”. *Background:* Acetaminophen; Oxycodone Hydrochloride Tablets are a Drug Efficacy Study implementation “DESI” effective drug for which there are no known or suspected bioequivalence problems.

Active ingredient	Acetazolamide
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting condition. *Analytes to measure:* Acetazolamide in plasma. *Bioequivalence based on (90% CI):* Acetazolamide.

Active ingredient	Acyclovir
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Acyclovir in plasma. *Bioequivalence based on (90% CI):* Acyclovir.

Active ingredient	Acyclovir
Dosage form	Cream; topical
Recommended study	Two options: *In vitro* studies **or** *in vivo* clinical endpoint study. 1. *In Vitro* approach: To qualify for the in vitro approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). D. Acceptable *in vitro* permeation test (*IVPT*). **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Acyclovir
Dosage form	Ointment; topical
Recommended study	Two options: *In vitro* studies **<u>or</u>** *in vivo* clinical endpoint study. 1. <u>*In Vitro* approach:</u> To qualify for the in vitro approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). D. Acceptable *in vitro* permeation test (*IVPT*). **<u>Or</u>** 2. <u>Bioequivalence study with clinical endpoint.</u>

Active ingredient	Acyclovir
Dosage form	Suspension
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Acyclovir in plasma. *Bioequivalence based on (90% CI):* Acyclovir.

Active ingredient	Afatinib Dimaleate
Dosage form	Tablet
Recommended study	1 Study Type: Single dose, two-way, two-period, randomized, crossover *in vivo* study under fasting conditions. *Analytes to measure:* Afatinib in plasma. *Bioequivalence based on 90% IC:* Afatinib. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Agomelatine
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Agomelatine in plasma. *Bioequivalence based on (90% CI):* Agomelatine.

Active ingredient	Alcaftadine
Dosage form	Solution/drops; ophthalmic
Recommended study	Waiver option: To qualify for the in vitro approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization.

Active ingredient	Alectinib
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Alectinib in plasma. *Bioequivalence based on (90% CI):* Alectinib. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Alendronate Sodium
Dosage form	Effervescent Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Alendronate in plasma. *Bioequivalence based on (90% CI):* Alendronate.

Active ingredient	Alendronate Sodium
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Alendronate in plasma. *Bioequivalence based on (90% CI):* Alendronate. *Background:* Alendronate considered as a highly variable drug (i.e., within- subject variability ≥ 30%).

Active ingredient	Alfuzosin Hydrochloride
Dosage form	Extended Release Tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Alfuzosin in plasma. *Bioequivalence based on (90% CI):* Alfuzosin.

Active ingredient	Aliskiren
Dosage form	Tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Aliskiren in plasma. *Bioequivalence based on (90% CI):* Aliskiren. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Alogliptin Benzoate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Alogliptin in plasma. *Bioequivalence based on (90% CI):* Alogliptin. *Background:* To avoid hypoglycemic episodes in healthy volunteers, the drug products should be administered with 240 mL of a 20% glucose solution in water, followed by 60 mL of the glucose solution administered every 15 min for up to 4 hours after dosing.

Active ingredient	Amisulpride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Amisulpride in plasma. *Bioequivalence based on (90% CI):* Amisulpride.

Active ingredient	Amitriptyline Hydrochloride
Dosage form	Film-coated tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting condition. *Analytes to measure:* Amitriptyline, and its active metabolite, nortriptyline, in plasma. *Bioequivalence based on (90% CI):* Amitriptyline.

Active ingredient	Amlodipine; Bisoprolol
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Amlodipine, Bisoprolol in plasma. *Bioequivalence based on (90% CI):* Amlodipine and Bisoprolol. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Amlodipine Besilate; Candesartan Cilexetil
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting condition. *Analytes to measure:* Amlodipine and Candesartan in plasma. *Bioequivalence based on (90% CI):* Amlodipine and Candesartan. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Amlodipine; Hydrochlorothiazide; Losartan Potassium
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Amlodipine, Hydrochlorothiazide, Losartan, and its Carboxylic metabolite in plasma. *Bioequivalence based on (90% CI):* Amlodipine, Hydrochlorothiazide and Losartan. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Amlodipine; Hydrochlorothiazide; Valsartan
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Amlodipine, Hydrochlorothiazide and Valsartan in plasma. *Bioequivalence based on (90% CI):* Amlodipine, Hydrochlorothiazide and Valsartan. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Amlodipine; Indapamide
Dosage form	Tablet (Modified release for indapamide / immediate release for amlodipine)
Recommended study	2 studies *Type of studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Amlodipine and Indapamide in plasma. *Bioequivalence based on (90% CI):* Amlodipine and Indapamide.

Active ingredient	Amlodipine; Irbesartan
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Amlodipine and Irbesartan in plasma. *Bioequivalence based on (90% CI):* Amlodipine and Irbesartan. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Amlodipine; Lisinopril
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Amlodipine and Lisinopril in plasma. *Bioequivalence based on (90% CI):* Amlodipine and Lisinopril. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Amlodipine; Ramipril
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Amlodipine, Ramipril and active metabolite, Ramiprilat in plasma. *Bioequivalence based on (90% CI):* Amlodipine and Ramipril. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Amlodipine; Ramipril; Hydrochlorothiazide
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure*: Amlodipine, Ramipril and its metabolite, ramiprilat and Hydrochlorothiazide in plasma. *Bioequivalence based on (90% CI):* Amlodipine, Ramipril and Hydrochlorothiazide. *Background:* – AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Amlodipine Besylate; Hydrochlorothiazide; Olmesartan Medoxomil
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, crossover *in-vivo* under fasting conditions. *Analytes to measure:* Amlodipine, Hydrochlorothiazide and Olmesartan in plasma. *Bioequivalence based on (90% CI):* Amlodipine, Hydrochlorothiazide and Olmesartan. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Amlodipine Besylate; Olmesartan Medoxomil
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, crossover *in-vivo* under fasting conditions. *Analytes to measure:* Amlodipine and Olmesartan in plasma. *Bioequivalence based on (90% CI):* Amlodipine and Olmesartan. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Amlodipine Besylate; Perindopril Arginine
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Amlodipine, Perindopril, and the active metabolite Perindoprilat in plasma. *Bioequivalence based on (90% CI):* Amlodipine and Perindopril. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Amlodipine Besylate; Valsartan
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Amlodipine and Valsartan in plasma. *Bioequivalence based on (90% CI):* Amlodipine and Valsartan. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Amlodipine Besylate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Amlodipine in plasma. *Bioequivalence based on (90% CI):* Amlodipine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Amoxicillin; Clavulanate Potassium
Dosage form	Suspension
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting or fed conditions. *Analytes to measure:* Amoxicillin and Clavulanate acid in plasma. *Bioequivalence based on (90% CI):* Amoxicillin and Clavulanate acid.

Active ingredient	Amoxicillin; Clavulanate Potassium
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting or fed conditions. *Analytes to measure:* Amoxicillin and Clavulanic acid in plasma. *Bioequivalence based on (90% CI):* Amoxicillin and Clavulanic acid.

Active ingredient	Amoxicillin
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Amoxicillin in plasma. *Bioequivalence based on (90% CI):* Amoxicillin.

Active ingredient	Amoxicillin
Dosage form	Extended Release Tablet
Recommended study	2 studies *Type of studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Amoxicillin in plasma. *Bioequivalence based on (90% CI):* Amoxicillin.

Active ingredient	Amoxicillin
Dosage form	Suspension
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Amoxicillin in plasma. *Bioequivalence based on (90% CI):* Amoxicillin.

Active ingredient	Anastrozole
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Anastrozole in plasma. *Bioequivalence based on (90% CI):* Anastrozole. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Apixaban
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Apixaban in plasma. *Bioequivalence based on (90% CI):* Apixaban.

Active ingredient	Apremilast
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting condition. *Analytes to measure:* Apremilast in plasma. *Bioequivalence based on (90% CI):* Apremilast.

Active ingredient	Aprepitant
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Aprepitant in plasma. *Bioequivalence based on (90% CI):* Aprepitant.

Active ingredient	Aprepitant
Dosage form	Suspension
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Aprepitant in plasma. *Bioequivalence based on (90% CI):* Aprepitant.

Active ingredient	Aripiprazole
Dosage form	Orally Disintegrating Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Aripiprazole in plasma. *Bioequivalence based on (90% CI):* Aripiprazole. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Aripiprazole
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Aripiprazole in plasma. *Bioequivalence based on (90% CI):* Aripiprazole. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Asenapine
Dosage form	Sublingual Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Asenapine in plasma. *Bioequivalence based on (90% CI):* Asenapine. *Background:* • Asenapine exhibits nonlinear pharmacokinetics profile. • AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Atorvastatin Calcium
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Atorvastatin and its active metabolites, Ortho and Para-hydroxylated atorvastatin in plasma. *Bioequivalence based on (90% CI):* Atorvastatin. *Background:* Atorvastatin considered as a highly variable drug (i.e., within- subject variability ≥ 30%).

Active ingredient	Atorvastatin; Perindopril Arginine; Amlodipine
Dosage form	Film-coated tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting condition. *Analytes to measure:* Atorvastatin, Perindopril and the active metabolite, perindoprilat and Amlodipine in plasma. *Bioequivalence based on (90% CI):* Atorvastatin, Perindopril, and Amlodipine. *Background:* – AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence". – Atorvastatin considered as a highly variable drug (i.e., within- subject variability ≥ 30%).

Active ingredient	Avanafil
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Avanafil in plasma. *Bioequivalence based on (90% CI):* Avanafil.

Active ingredient	Azithromycin
Dosage form	Suspension
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Azithromycin in plasma. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Azithromycin
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Azithromycin in plasma. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Bacitracin
Dosage form	Ointment; ophthalmic
Recommended study	*In vitro* approach: To qualify for the in vitro approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*).

Active ingredient	Beclomaetasone Dipropionate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover in-vivo under fasting conditions. *Analytes to measure:* Amlodipine in plasma. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Benzyl alcohol
Dosage form	Lotion; topical
Recommended study	Two options: *In vitro* studies **<u>or</u>** *in vivo* clinical endpoint study. 1. <u>*In* vitro approach:</u> To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). D. Equivalent comparative dosage form performance characterization ex vivo in Pediculus humanus capitis (head lice), using an appropriate pediculicide hair tuft assay with relevant controls. **<u>Or</u>** 2. <u>Bioequivalence study with clinical endpoint.</u>

Active ingredient	Betahistine Dihydrochloride
Dosage form	Tablet
Recommended study	Two options: Biowaiver **or** Bioequivalence study. *Type of Study:* 1. BCS waiver option: The drug classified as BCS class I, for more information, please see "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Betahistine in plasma. *Bioequivalence based on (90% CI):* Betahistine.

Active ingredient	Betamethasone Valerate
Dosage form	Foam aerosol; topical
Recommended study	Two options: waiver **or** bioequivalence study. 1. Waiver option: A generic betamethasone valerate foam aerosol/topical should be a solution for aerosolization; have the same active ingredient in the same concentration and dosage form as the reference listed drug product (RLD); and must not have an inactive ingredient or other change in formulation from the RLD that may significantly affect systemic or local availability. **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Bexarotene
Dosage form	Gel; topical
Recommended study	Two options: *In vitro* approach **<u>or</u>** *in vivo* bioequivalence study. 1. <u>*In vitro* approach:</u> To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). **<u>Or</u>** 2. <u>Bioequivalence study with clinical endpoint.</u>

Active ingredient	Bicalutamide
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Bicalutamide in plasma. *Bioequivalence based on (90% CI):* Bicalutamide.

Active ingredient	Bimatoprost
Dosage form	Solution/drops; ophthalmic
Recommended study	Two options: *In vitro* approach **<u>or</u>** *in vivo* bioequivalence study. 1. <u>*In vitro* approach:</u> To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. **<u>Or</u>** 2. <u>Bioequivalence study.</u>

Active ingredient	Bisoprolol Fumarate ; Hydrochlorothiazide
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Bisoprolol and Hydrochlorothiazide in plasma. *Bioequivalence based on (90% CI):* Bisoprolol and Hydrochlorothiazide.

Active ingredient	Bisoprolol Fumarate; Perindopril Arginine
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Bisoprolol and Perindopril in plasma. *Bioequivalence based on (90% CI):* Bisoprolol and Perindopril.

Active ingredient	Bisoprolol Fumarate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Bisoprolol in plasma. *Bioequivalence based on (90% CI):* Bisoprolol.

Active ingredient	Bosentan
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Bosentan in plasma. *Bioequivalence based on (90% CI):* Bosentan.

Active ingredient	Bosutinib Monohydrate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Bosutinib in plasma. *Bioequivalence based on (90% CI):* Bosutinib.

Active ingredient	Brimonidine tartrate; Timolol maleate
Dosage form	Solution/drops; ophthalmic
Recommended study	Two options: *In vitro* approach **<u>or</u>** *in vivo* bioequivalence study. 1. <u>*In vitro* approach:</u> To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. **<u>Or</u>** 2. <u>Bioequivalence study.</u>

Active ingredient	Brimonidine Tartrate
Dosage form	Solution/drops; ophthalmic
Recommended study	Two options: Waiver **or** bioequivalence study with clinical endpoint. *Type of Study:* 1. Waiver option: A generic Brimonidine tartrate ophthalmic solution product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). An in vivo BE study with clinical endpoint is requested for a difference of more than 5% in the amount of any inactive ingredient compared to that of the RLD, or differences in comparative physicochemical characterization data. **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Bromfenac sodium
Dosage form	Solution/drops; ophthalmic
Recommended study	Two options: *In vitro* approach **<u>or</u>** *in vivo* bioequivalence study. 1. <u>*In vitro* approach:</u> To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. **<u>Or</u>** 2. <u>Bioequivalence study with pharmacokinetic (PK) end points.</u>

Active ingredient	Cabergoline
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Cabergoline in plasma. *Bioequivalence based on (90% CI):* Cabergoline. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Cabozantinib
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Cabozantinib in plasma. *Bioequivalence based on (90% CI):* Cabozantinib. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Calcipotriene
Dosage form	Solution; Topical
Recommended study	Two options: waiver **or** *in vivo* bioequivalence study. 1. Waiver option: The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). **Or** 2. *In vivo* bioequivalence study.

Active ingredient	Canagliflozin; Metformin Hydrochloride
Dosage form	Extended Release Tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Canagliflozin and Metformin in plasma. *Bioequivalence based on (90% CI):* Canagliflozin and Metformin. *Background:* To avoid hypoglycemic episodes in healthy volunteers, the drug products should be administered with 240 mL of a 20% glucose solution in water, followed by 60 mL of the glucose solution administered every 15 min for up to 4 hours after dosing.

Active ingredient	Canagliflozin; Metformin Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Canagliflozin and Metformin in plasma. *Bioequivalence based on (90% CI):* Canagliflozin and Metformin. *Background:* To avoid hypoglycemic episodes in healthy volunteers, the drug products should be administered with 240 mL of a 20% glucose solution in water, followed by 60 mL of the glucose solution administered every 15 min for up to 4 hours after dosing.

Active ingredient	Canagliflozin
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Canagliflozin in plasma. *Bioequivalence based on (90% CI):* Canagliflozin. *Background:* To avoid hypoglycemic episodes in healthy volunteers, the drug products should be administered with 240 mL of a 20% glucose solution in water, followed by 60 mL of the glucose solution administered every 15 min for up to 4 hours after dosing.

Active ingredient	Candesartan Cilexetil; Hydrochlorothiazide
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Candesartan and Hydrochlorothiazide in plasma. *Bioequivalence based on (90% CI):* Candesartan and Hydrochlorothiazide.

Active ingredient	Candesartan Cilexetil
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover in-vivo under fasting conditions. *Analytes to measure:* Candesartan in plasma. *Bioequivalence based on (90% CI):* Candesartan.

Active ingredient	Capecitabine
Dosage form	Tablet
Recommended study	Two options: Biowaiver **or** Bioequivalence study. *Type of Study:* 1. BCS waiver option: The drug classified as BCS class I, for more information, please see "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Capecitabine in plasma. *Bioequivalence based on (90% CI):* Capecitabine.

Active ingredient	Carbamazepine
Dosage form	Extended Release Capsule
Recommended study	2 studies *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Carbamazepine in plasma. *Bioequivalence based on (90% CI):* Carbamazepine. *Background:* Carbamazepine considered as a Narrow therapeutic index (NTI) drug.

Active ingredient	Carbamazepine
Dosage form	Extended Release Tablet
Recommended study	2 studies *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Carbamazepine in plasma. *Bioequivalence based on (90% CI):* Carbamazepine. *Background:* Carbamazepine considered as a Narrow therapeutic index (NTI) drug.

Active ingredient	Carbamazepine
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Carbamazepine in plasma. *Bioequivalence based on (90% CI):* Carbamazepine. *Background:* Carbamazepine considered as a Narrow therapeutic index (NTI) drug.

Active ingredient	Carglumic Acid
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Carglumic acid in plasma. *Bioequivalence based on (90% CI):* Carglumic acid. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Cefaclor
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Cefaclor in plasma. *Bioequivalence based on (90% CI):* Cefaclor.

Active ingredient	Cefdinir
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Cefdinir in plasma. *Bioequivalence based on (90% CI):* Cefdinir.

Active ingredient	Cedinir
Dosage form	Suspension
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Cedinir in plasma. *Bioequivalence based on (90% CI):* Cedinir.

Active ingredient	Cefadroxil
Dosage form	Capsule
Recommended study	1 study Type of Study: Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to Measure:* Cefadroxil in plasma. *Bioequivalence based on (90% CI):* Cefadroxil.

Active ingredient	Cefixime
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Cefixime in plasma. *Bioequivalence based on (90% CI):* Cefixime.

Active ingredient	Cefixime
Dosage form	Suspension
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Cefixime in plasma. *Bioequivalence based on (90% CI):* Cefixime.

Active ingredient	Cefixime
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Cefixime in plasma. *Bioequivalence based on (90% CI):* Cefixime.

Active ingredient	Cefpodoxime Proxetil
Dosage form	Suspension
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Cefpodoxime in plasma. *Bioequivalence based on (90% CI):* Cefpodoxime.

Active ingredient	Cefpodoxime Proxetil
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Cefpodoxime in plasma. *Bioequivalence based on (90% CI):* Cefpodoxime.

Active ingredient	Cefuroxime Axetil
Dosage form	Suspension
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Cefuroxime in plasma. *Bioequivalence based on (90% CI):* Cefuroxime.

Active ingredient	Cefuroxime Axetil
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Cefuroxime in plasma. *Bioequivalence based on (90% CI):* Cefuroxime.

Active ingredient	Celecoxib
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo under* fasting conditions. *Analytes to measure:* Celecoxib in plasma. *Bioequivalence based on (90% CI):* Celecoxib.

Active ingredient	Chlorzoxazone
Dosage form	Tablet
Recommended study	Two options: Biowaiver **or** Bioequivalence study. *Type of Study:* 1. Waiver option: The drug is listed on DESI list, for more information, please see "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Chlorzoxazone in plasma. *Bioequivalence based on (90% CI):* Chlorzoxazone.

Active ingredient	Cholic acid
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Unconjugated cholic acid and total cholic acid (unconjugated cholic acid, glycocholic acid, and taurocholic acid) in plasma. 24 hours pre-dose baseline correction (same sampling scheme as on dosing day including meals, with individual matched sampling time-points). *Bioequivalence based on (90% CI):* Baseline corrected (i) unconjugated cholic acid and (ii) total cholic acid (unconjugated cholic acid, glycocholic acid, and taurocholic acid).

Active ingredient	Ciclopirox
Dosage form	Shampoo; Topical
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization (polymeric resin). **Or** 2. Bioequivalence (BE) with Clinical Endpoint Study.

Active ingredient	Ciclopirox
Dosage form	Solution; Topical
Recommended study	Two options: *In vitro* approach **<u>or</u>** *in vivo* bioequivalence study. 1. <u>*In vitro* approach:</u> To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization (polymeric resin). **<u>Or</u>** 2. <u>Bioequivalence (BE) with Clinical Endpoint.</u>

Active ingredient	Cinacalcet Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Cinacalcet in plasma. *Bioequivalence based on (90% CI):* Cinacalcet. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Ciprofloxacin; Dexamethasone
Dosage form	Suspension; otic drops
Recommended study	Two options: *In vitro* Studies **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (IVRT). D. Acceptable comparative in vitro antimicrobial kill rates. **Or** 2. Bioequivalence study with pharmacokinetic (PK) endpoints.

Active ingredient	Ciprofloxacin Hydrochloride
Dosage form	Extended Release Tablets
Recommended study	2 studies *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Ciprofloxacin in plasma. *Bioequivalence based on (90% CI):* Ciprofloxacin. *Note:* The 500-mg strength of ciprofloxacin extended-release tablets is NOT eligible for a waiver of *in-vivo* testing based on an acceptable *in-vivo* bioequivalence study of the 1000-mg strength.

Active ingredient	Ciprofloxacin hydrochloride
Dosage form	Solution/drops; ophthalmic
Recommended study	Two options: *In vitro* approach **<u>or</u>** *in vivo* bioequivalence study. 1. <u>*In vitro* approach:</u> To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. **<u>Or</u>** 2. <u>Bioequivalence study.</u>

Active ingredient	Ciprofloxacin Hydrochloride
Dosage form	Ointment; ophthalmic
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Ciprofloxacin Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Ciprofloxacin in plasma. *Bioequivalence based on (90% CI):* Ciprofloxacin.

Active ingredient	Ciprofloxacin
Dosage form	Suspension
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Ciprofloxacin in plasma. *Bioequivalence based on (90% CI):* Ciprofloxacin.

Active ingredient	Citalopram Hydrobromide
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Citalopram in plasma. *Bioequivalence based on (90% CI):* Citalopram. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Clarithromycin
Dosage form	Extended Release Tablet
Recommended study	2 studies *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Clarithromycin in plasma. *Bioequivalence based on (90% CI):* Clarithromycin.

Active ingredient	Clarithromycin
Dosage form	Suspension
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Clarithromycin in plasma. *Bioequivalence based on (90% CI):* Clarithromycin.

Active ingredient	Clarithromycin
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Clarithromycin in plasma. *Bioequivalence based on (90% CI):* Clarithromycin.

Active ingredient	Clindamycin Hydrochloride
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Clindamycin in plasma. *Bioequivalence based on (90% CI):* Clindamycin.

Active ingredient	Clindamycin Phosphate
Dosage form	Aerosol, Foam; Topical
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: A. Same active ingredient in the same concentration and dosage form as the Reference Listed Drug (RLD) and must not have an inactive ingredient or other change in formulation from the RLD that may significantly affect systemic or local availability. B. Comparative assay of the test and reference product. **Or** 2. Bioequivalence (BE) Study with Clinical Endpoint.

Active ingredient	Clindamycin phosphate
Dosage form	Gel; Topical
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). **Or** 2. Bioequivalence Study with Clinical Endpoint.

Active ingredient	Clindamycin phosphate
Dosage form	Swab; Topical
Recommended study	Two options: waiver **<u>or</u>** *in vivo* bioequivalence study. <u>1. Waiver option:</u> To qualify for the Waiver approach for this drug product the following criteria should be met: A. Same active ingredient in the same concentration and dosage form as the Reference Listed Drug (RLD) and must not have an inactive ingredient or other change in formulation from the RLD that may significantly affect systemic or local availability. **<u>Or</u>** <u>2. Bioequivalence Study with Clinical Endpoint.</u>

Active ingredient	Clobazam
Dosage form	Tablets/ Oral
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Clobazam and its active metabolite, N-desmethylclobazam in plasma. *Bioequivalence based on (90% CI):* Clobazam.

Active ingredient	Clobazam
Dosage form	Suspension/ Oral
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Clobazam and its active metabolite, N-desmethylclobazam in plasma. *Bioequivalence based on (90% CI):* Clobazam.

Active ingredient	Clobetasol Propionate
Dosage form	Shampoo; Topical
Recommended study	Two options: waiver **<u>or</u>** *in vivo* bioequivalence study. 1. <u>Waiver option:</u> The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). **<u>Or</u>** 2. <u>*In vivo* bioequivalence study.</u>

Active ingredient	Clobetasol Propionate
Dosage form	Aerosol, Foam; Topical
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: A. Same active ingredient in the same concentration and dosage form as the Reference Listed Drug (RLD) and must not have an inactive ingredient or other change in formulation from the RLD that may significantly affect systemic or local availability. B. Comparative assay of the test and reference product. **Or** 2. Bioequivalence (BE) Study with Clinical Endpoint.

Active ingredient	Clobetasol Propionate
Dosage form	Solution; Topical
Recommended study	Two options: waiver **<u>or</u>** *in vivo* bioequivalence study. 1. <u>Waiver option:</u> The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). **<u>Or</u>** 2. <u>*In vivo* bioequivalence study with clinical endpoint.</u>

Active ingredient	Clobetasol Propionate
Dosage form	Spray; Topical
Recommended study	Two options: waiver **<u>or</u>** *in vivo* bioequivalence study. 1. <u>Waiver option:</u> The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). **<u>Or</u>** 2. <u>*In vivo* bioequivalence study with clinical endpoint.</u>

Active ingredient	Clopidogrel Bisulfate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Clopidogrel in plasma. *Bioequivalence based on (90% CI):* Clopidogrel. *Background:* To avoid the potential for back-conversion of the quantitatively major metabolite clopidogrel carboxylic acid to the parent drug, the analysis method should be free from methanol and/or ethanol.

Active ingredient	Clotrimazole
Dosage form	Solution; Topical
Recommended study	Two options: waiver **or** *in vivo* bioequivalence study. 1. Waiver option: The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). **Or** 2. *In vivo* bioequivalence study with clinical endpoint.

Active ingredient	Colchicine
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Colchicine in plasma. *Bioequivalence based on (90% CI):* Colchicine. *Background:* Colchicine considered as a Narrow therapeutic index (NTI) drug.

Active ingredient	Crizotinib
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Crizotinib in plasma. *Bioequivalence based on (90% CI):* Crizotinib. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Crotamiton
Dosage form	Cream; Topical
Recommended study	Acceptable comparative physicochemical characterization of the test and reference listed drug (RLD) formulations for each strength of the product to establish that the test product is a comparable crotamiton topical cream identical in strength to the RLD.

Active ingredient	Crotamiton
Dosage form	Lotion; Topical
Recommended study	Acceptable comparative physicochemical characterization of the test and reference listed drug (RLD) formulations for each strength of the product to establish that the test product is a comparable crotamiton topical lotion identical in strength to the RLD.

Active ingredient	Cyclobenzaprine hydrochloride
Dosage form	Extended release capsule
Recommended study	2 studies *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Cyclobenzaprine in plasma. *Bioequivalence based on (90% CI):* Cyclobenzaprine.

Active ingredient	Cyclobenzaprine
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Cyclobenzaprine in plasma. *Bioequivalence based on (90% CI):* Cyclobenzaprine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Cyclosporine
Dosage form	Capsule
Recommended study	2 studies Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Cyclosporine in plasma or whole blood. *Bioequivalence based on (90% CI):* Cyclosporine. *Background:* Cyclosporine considered as a Narrow Therapeutic Index (NTI) drug.

Active ingredient	Cyclosporine
Dosage form	Emulsion; ophthalmic
Recommended study	Two options: *In vitro* approach **<u>or</u>** *in vivo* bioequivalence study. 1. <u>*In vitro* approach:</u> To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. **<u>Or</u>** 2. <u>*In vivo* bioequivalence study with clinical endpoint.</u>

Active ingredient	Cyclosporine
Dosage form	Solution/drops; ophthalmic
Recommended study	Two options: *In vitro* approach **<u>or</u>** *in vivo* bioequivalence study. 1. <u>*In vitro* approach:</u> To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. **<u>Or</u>** 2. <u>*In vivo* bioequivalence study with clinical endpoint.</u>

Active ingredient	Dabigatran Etexilate Mesylate
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* free (non-conjugated) dabigatran and total dabigatran (non-conjugated plus conjugated dabigatran after complete alkaline cleavage of dabigatran glucuronides) in plasma. *Bioequivalence based on (90% CI):* free (non-conjugated) dabigatran and total dabigatran (non-conjugated plus conjugated dabigatran).

Active ingredient	Daclatasvir Dihydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Daclatasvir in plasma. *Bioequivalence based on (90% CI):* Daclatasvir.

Active ingredient	Dalfampridine
Dosage form	Extended Release Tablet
Recommended study	2 studies *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Dalfampridine in plasma. *Bioequivalence based on (90% CI):* Dalfampridine.

Active ingredient	Dapagliflozin Propanediol; Metformin Hydrochloride
Dosage form	Extended Release Tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Dapagliflozin and metformin in plasma. *Bioequivalence based on (90% CI):* Dapagliflozin and metformin. *Background:* To avoid hypoglycemic episodes, the drug products should be administered with 240 mL of a 20% glucose solution in water, followed by 60 mL of the glucose solution administered every 15 minutes for up to 4 hours after dosing.

Active ingredient	Dapagliflozin Propanediol; Saxagliptin Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Dapagliflozin, saxagliptin and its active metabolite, 5- hydroxy saxagliptin, in plasma. *Bioequivalence based on (90% CI):* Dapagliflozin and saxagliptin. *Background:* To avoid hypoglycemic episodes, the drug products should be administered with 240 mL of a 20% glucose solution in water, followed by 60 mL of the glucose solution administered every 15 minutes for up to 4 hours after dosing.

Active ingredient	Dapagliflozin Propanediol
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Dapagliflozin in plasma. *Bioequivalence based on (90% CI):* Dapagliflozin. *Background:* To avoid hypoglycemic episodes, the drug products should be administered with 240 mL of a 20% glucose solution in water, followed by 60 mL of the glucose solution administered every 15 minutes for up to 4 hours after dosing.

Active ingredient	Dapoxetine Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure*: Dapoxetine in plasma. *Bioequivalence based on (90% CI):* Dapoxetine.

Active ingredient	Dapsone
Dosage form	Gel; Topical
Recommended study	Two options: *In vitro* approach **<u>or</u>** *in vivo* bioequivalence study. 1. <u>*In vitro* approach:</u> To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). D. Acceptable *in vitro* permeation test (*IVPT*). **<u>Or</u>** 2. <u>Bioequivalence study with clinical endpoint.</u>

Active ingredient	Darunavir
Dosage form	Film-coated tablet
Recommended study	1 study *Type of Study:* single-dose, two-treatment, two-sequence, two-period, crossover *in-vivo* under fed condition. *Analytes to measure*: Darunavir in plasma. *Bioequivalence based on (90% CI):* Darunavir.

Active ingredient	Dasatinib
Dosage form	Tablet
Recommended study	2 studies Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Dasatinib in plasma. *Bioequivalence based on (90% CI):* Dasatinib. *Background:* These products are considered with specific formulation characteristics and, consequently, bioequivalence should be evaluated under fasting and fed conditionss. *(Effective date: 1/May/2021)*

Active ingredient	Deferasirox
Dosage form	Dispersible Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Deferasirox in plasma. *Bioequivalence based on (90% CI):* Deferasirox.

Active ingredient	Deferasirox
Dosage form	Film coated Tablet
Recommended study	2 studies *Type of Study:* single-dose, two-treatment, two-sequence, two-period, crossover *in-vivo* under fasting conditions. **And** single-dose, two-treatment, two-sequence, two-period, crossover *in-vivo* under fed conditions. *Analytes to measure*: Deferasirox in plasma. *Bioequivalence based on (90% CI):* Deferasirox.

Active ingredient	Deferasirox
Dosage form	Granules
Recommended study	2 studies *Type of Study:* single-dose, two-treatment, two-sequence, two-period, crossover *in-vivo* under fasting conditions. **And** single-dose, two-treatment, two-sequence, two-period, crossover *in-vivo* under fed conditions. *Analytes to measure*: Deferasirox in plasma. *Bioequivalence based on (90% CI):* Deferasirox.

Active ingredient	Desloratadine
Dosage form	Orally Disintegrating Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover in-vivo under fasting conditions. *Analytes to measure:* Desloratadine and the active metabolite, 3-hydroxydesloratadine in plasma. *Bioequivalence based on (90% CI):* Desloratadine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Desloratadine
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Desloratadine and its metabolite, 3-hydroxydesloratadine. *Bioequivalence based on (90% CI):* Desloratadine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Desmopressin Acetate
Dosage form	Sublingual tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Desmopressin in plasma. *Bioequivalence based on (90% CI):* Desmopressin. *Note:* - The dose should be administered sublingually without water. - Fluids should be restricted for 2 hours prior to dosing and a minimum of 8 hours post-dose. Monitor serum electrolytes regularly to identify any trend toward worsening hyponatremia prior to discharge from the study site.

Active ingredient	Desmopressin acetate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Desmopressin in plasma. *Bioequivalence based on (90% CI):* Desmopressin.

Active ingredient	Desogestrel; Ethinyl Estradiol
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Active metabolite of Desogestrel, 3-ketodesogestrel (etonogestrel) and ethinyl estradiol in plasma. *Bioequivalence based on (90% CI):* 3-ketodesogestrel (etonogestrel) and ethinyl estradiol. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Desogestrel
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Active metabolite of Desogestrel, 3-ketodesogestrel (etonogestrel) in plasma. *Bioequivalence based on (90% CI):* 3-ketodesogestrel (etonogestrel). *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Desoximetasone
Dosage form	Spray; topical
Recommended study	Two options: waiver **or** *in vivo* vasoconstrictor studies. 1. Waiver option: The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). If inactive ingredients of test product differ from the RLD or are present in significantly different amounts, the applicant must identify and characterize the formulation differences and provide information demonstrating that the differences do not affect the safety or efficacy. **Or** 2. *In vivo* option: *Type of Studies:* A. Pilot vasoconstrictor study. **And** B. Pivotal vasoconstrictor study.

Active ingredient	Dexamethasone; Tobramycin
Dosage form	Suspension/ drops; ophthalmic
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). D. Acceptable comparative in vitro antimicrobial kill rates. **Or** 2. *In-vivo* bioequivalence study with pharmacokinetic (PK) endpoints.

Active ingredient	Dexamethasone; Tobramycin
Dosage form	Ointment; ophthalmic
Recommended study	Two options: *In vitro* studies **<u>or</u>** *in-vivo* bioequivalence study with pharmacokinetic (PK) endpoints. 1. <u>*In vitro* studies:</u> To qualify for the *in vitro* option for Dexamethasone; Tobramycin phosphate Ointment, all the following criteria must be met: i. The test and Reference List Drug (RLD) formulations are qualitatively and quantitatively the same (Q1/Q2). ii. Acceptable comparative physicochemical characterization of the test and Reference Standard (RS) formulations. iii. Acceptable comparative *in vitro* drug release rates from the test and RS formulations. **<u>Or</u>** 2. <u>*In-vivo* bioequivalence study with pharmacokinetic (PK) endpoints.</u>

Active ingredient	Dexamethasone
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Dexamethasone in plasma *Bioequivalence based on (90% CI):* Dexamethasone

Active ingredient	Dexamethasone; Neomycin Sulfate; Polymyxin B Sulfate
Dosage form	Suspension; Ophthalmic drops
Recommended study	Two options: *In vitro* studies **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (IVRT). D. Acceptable comparative in vitro antimicrobial kill rates. **Or** 2. Bioequivalence study with pharmacokinetic (PK) endpoints.

Active ingredient	Dexamethasone; Tobramycin
Dosage form	Suspension ; Ophthalmic
Recommended study	Two options: *In vitro* studies **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (IVRT). D. Acceptable comparative in vitro antimicrobial kill rates. **Or** 2. Bioequivalence study with pharmacokinetic (PK) endpoints.

Active ingredient	Diclofenac sodium
Dosage form	Solution drops; ophthalmic
Recommended study	Two options: *In vitro* approach **<u>or</u>** *in vivo* bioequivalence study. 1. <u>*In vitro* approach:</u> To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. **<u>Or</u>** 2. <u>Bioequivalence study with clinical endpoint.</u>

Active ingredient	Difluprednate
Dosage form	Emulsion ; Ophthalmic
Recommended study	Two options: *In vitro* approach **<u>or</u>** *in vivo* bioequivalence study. 1. <u>*In vitro* approach:</u> To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). **<u>Or</u>** 2. <u>Bioequivalence study with pharmacokinetic (PK) endpoints.</u>

Active ingredient	Dimethyl Fumarate
Dosage form	Delayed Release Capsule
Recommended study	2 studies *Type of Study:* Single-dose, two-treatment, two-sequence, two-period, crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-sequence, two-period, crossover *in-vivo* under fed conditions. *Analytes to measure:* Active metabolite monomethyl fumarate (MMF) in plasma. *Bioequivalence based on (90% CI):* Active metabolite monomethyl fumarate (MMF) Note: Standardized administration of aspirin administered 30 min prior to drug administrations could be considered to reduce flushing, which is the most frequent unfavourable AE in the fasting state.

Active ingredient	Divalproex Sodium
Dosage form	Delayed release tablets
Recommended study	2 studies *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Valproic acid in plasma. *Bioequivalence based on (90% CI):* Valproic acid. *Background:* Divalproex sodium considered as a Narrow therapeutic index (NTI) drug.

Active ingredient	Divalproex Sodium
Dosage form	Delayed release pellets capsule
Recommended study	2 studies *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Valproic acid in plasma. *Bioequivalence based on (90% CI):* Valproic acid. *Background:* Divalproex sodium considered as a Narrow therapeutic index (NTI) drug.

Active ingredient	Divalproex Sodium
Dosage form	Extended release tablets
Recommended study	2 studies *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Valproic acid in plasma. *Bioequivalence based on (90% CI):* Valproic acid. *Background:* Divalproex sodium considered as a Narrow therapeutic index (NTI) drug.

Active ingredient	Docosanol
Dosage form	Cream; topical
Recommended study	Two options: *In vitro* **or** *in vivo* study. 1. *In vitro* option: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q_1/Q_2). B. Acceptable comparative physicochemical/ microstructural characterizations. C. Acceptable *in vitro* release test (*IVRT*). **Or** 2. Bioequivalence (BE) with Clinical Endpoint Study.

Active ingredient	Dolutegravir
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Dolutegravir in plasma. *Bioequivalence based on (90% CI):* Dolutegravir.

Active ingredient	Domperidone
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Domperidone in plasma. *Bioequivalence based on (90% CI):* Domperidone.

Active ingredient	Donepezil Hydrochloride
Dosage form	Orally disintegrating tablet
Recommended study	Two options: Biowaiver **or** bioequivalence study. 1. BCS waiver option: The drug classified as BCS class I, for more information, please refer to "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Donepezil in plasma. *Bioequivalence based on (90% CI):* Donepezil. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Donepezil Hydrochloride
Dosage form	Tablet
Recommended study	Two options: Biowaiver **<u>or</u>** bioequivalence study. 1. <u>BCS waiver option:</u> The drug classified as BCS class I, for more information, please refer to "The SFDA guideline for biowaiver". **<u>Or</u>** 2. <u>Bioequivalence study:</u> *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Donepezil in plasma. *Bioequivalence based on (90% CI):* Donepezil. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Dorzolamide Hydrochloride ; Timolol As Maleate
Dosage form	Solution; ophthalmic drop
Recommended study	Two options: Waiver **or** bioequivalence study with clinical endpoint. 1. Waiver option: A generic dorzolamide hydrochloride and Timolol As Maleate ophthalmic solution product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Dorzolamide Hydrochloride
Dosage form	Solution; ophthalmic drop
Recommended study	Two options: Waiver **or** bioequivalence study with clinical endpoint. 1. Waiver option: A generic dorzolamide hydrochloride ophthalmic solution product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Dorzolamide Hydrochloride
Dosage form	Solution drops; ophthalmic
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Doxycycline Hyclate
Dosage form	Capsule
Recommended study	Two options: Biowaiver **or** bioequivalence study. 1. BCS waiver option: The drug classified as BCS class I, for more information, please refer to "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Doxycycline in plasma. *Bioequivalence based on (90% CI):* Doxycycline.

Active ingredient	Doxycycline Hyclate
Dosage form	Delayed release capsule
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Doxycycline in plasma. *Bioequivalence based on (90% CI):* Doxycycline.

Active ingredient	Doxycycline Hyclate
Dosage form	Delayed release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Doxycycline in plasma. *Bioequivalence based on (90% CI):* Doxycycline.

Active ingredient	Doxycycline Hyclate
Dosage form	Tablet
Recommended study	Two options: Biowaiver **or** bioequivalence study. 1. BCS waiver option: The drug classified as BCS class I, for more information, please refer to "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Doxycycline in plasma. *Bioequivalence based on (90% CI):* Doxycycline.

Active ingredient	Dronedarone
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Dronedarone and it active metabolite, N-debutyl dronedarone in plasma. *Bioequivalence based on (90% CI):* Dronedarone.

Active ingredient	Drospirenone; Ethinyl Estradiol
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Drospirenone and Ethinyl Estradiol in plasma. *Bioequivalence based on (90% CI):* Drospirenone and Ethinyl Estradiol. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Duloxetine Hydrochloride
Dosage form	Delayed release capsule
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Duloxetine in plasma. *Bioequivalence based on (90% CI):* Duloxetine.

Active ingredient	Efinaconazole
Dosage form	Solution; topical
Recommended study	Two options: *In vitro* **or** *in vivo* study. 1. *In vitro* option: To qualify for the *in vitro* option for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Elvitegravir
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Elvitegravir in plasma. *Bioequivalence based on (90% CI):* Elvitegravir.

Active ingredient	Empagliflozin
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, crossover *in-vivo* under fasting condition. *Analytes to measure:* Empagliflozin in plasma. *Bioequivalence based on (90% CI):* Empagliflozin.

Active ingredient	Emtricitabine; Tenofovir Disoproxil Fumarate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Emtricitabine and Tenofovir in plasma. *Bioequivalence based on (90% CI):* Emtricitabine and Tenofovir.

Active ingredient	Enalapril Maleate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Enalapril and active metabolite, Enalaprilat in plasma. *Bioequivalence based on (90% CI):* Enalapril. *Background:* Methanol and/or ethanol should not be used during sample extraction to avoid potential production of methyl ester analogue in the presence of methanol (underestimation of the parent drug), and to avoid potential for back convert of Enalaprilat to the parent drug with ethanol (overestimation of the parent drug).

Active ingredient	Entecavir
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Entecavir in plasma. *Bioequivalence based on (90% CI):* Entecavir. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Enzalutamide
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Enzalutamide in plasma. *Bioequivalence based on (90% CI):* Enzalutamide. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Eperisone Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Eperisone in plasma. *Bioequivalence based on (90% CI):* Eperisone. *Background:* Eperisone considered as a highly variable drug (i.e., within-subject variability ≥ 30%).

Active ingredient	Eplerenone
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Eplerenone in plasma. *Bioequivalence based on (90% CI):* Eplerenone.

Active ingredient	Erlotinib Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Erlotinib in plasma. *Bioequivalence based on (90% CI):* Erlotinib. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Erythromycin
Dosage form	Delayed release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Erythromycin in plasma. *Bioequivalence based on (90% CI):* Erythromycin.

Active ingredient	Erythromycin
Dosage form	Gel
Recommended study	Acceptable comparative physicochemical characterization of the test and reference standard (RS) formulations of the product to establish that the test product is pharmaceutically equivalent to the RS with the identical strength.

Active ingredient	Erythromycin
Dosage form	Ointment; ophthalmic
Recommended study	*In vitro* option: To qualify for the *in vitro* option for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization.

Active ingredient	Erythromycin
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Erythromycin in plasma. *Bioequivalence based on (90% CI):* Erythromycin.

Active ingredient	Erythromycin
Dosage form	Gel; topical
Recommended study	Acceptable comparative physicochemical characterization of the test and reference formulations of the product to establish that the test product is pharmaceutically equivalent to the reference product with the identical strength.

Active ingredient	Erythromycin
Dosage form	Solution; Topical
Recommended study	Waiver option: The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD).

Active ingredient	Erythromycin
Dosage form	Swab; Topical
Recommended study	Waiver option: The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD).

Active ingredient	Escitalopram Oxalate
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Escitalopram in plasma. *Bioequivalence based on (90% CI):* Escitalopram. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Escitalopram Oxalate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Escitalopram in plasma. *Bioequivalence based on (90% CI):* Escitalopram. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Esomeprazole Magnesium
Dosage form	Delayed release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Esomeprazole in plasma. *Bioequivalence based on (90% CI):* Esomeprazole. *Background:* Esomeprazole considered as a highly variable drug.

Active ingredient	Esomeprazole Magnesium
Dosage form	Powder for delayed release suspension
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Esomeprazole in plasma, using an achiral assay. *Bioequivalence based on (90% CI):* Esomeprazole. *Background:* Esomeprazole considered as a highly variable drug.

Active ingredient	Eszopiclone
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Eszopiclone in plasma. *Bioequivalence based on (90% CI):* Eszopiclone.

Active ingredient	Ethinyl Estradiol; Cyproterone
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Ethinyl Estradiol, Cyproterone and its major metabolite 15β-OH-Cyproterone in plasma. *Bioequivalence based on (90% CI):* Ethinyl Estradiol and Cyproterone.

Active ingredient	Ethionamide
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Ethionamide in plasma. *Bioequivalence based on (90% CI):* Ethionamide.

Active ingredient	Etodolac
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Etodolac in plasma. *Bioequivalence based on (90% CI):* Etodolac.

Active ingredient	Etodolac
Dosage form	Extended release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Etodolac in plasma. *Bioequivalence based on (90% CI):* Etodolac.

Active ingredient	Etodolac
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Etodolac in plasma. *Bioequivalence based on (90% CI):* Etodolac.

Active ingredient	Etoricoxib
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Etoricoxib in plasma. *Bioequivalence based on (90% CI):* Etoricoxib. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Everolimus
Dosage form	Tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, replicate, four-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, replicate, four-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Everolimus in whole blood. *Bioequivalence based on (90% CI):* Everolimus. *Background:* • AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence". • Everolimus considered as a highly variable drug (i.e., within-subject variability ≥ 30%). • Everolimus considered as a Narrow therapeutic index (NTI) drug.

Active ingredient	Exemestane
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Exemestane in plasma. *Bioequivalence based on (90% CI):* Exemestane. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Ezetimibe
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Ezetimibe (unconjugated) and total ezetimibe (ezetimibe + ezetimibe glucuronide) in plasma. *Bioequivalence based on (90% CI):* Total ezetimibe (ezetimibe + ezetimibe glucuronide). *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Ezetimibe; simvastatin
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting condition. *Analytes to measure:* Ezetimibe (unconjugated), Total Ezetimibe (ezetimibe + ezetimibe glucuronide), Simvastatin, and Simvastatin acid (β-hydroxy acid) in plasma. *Bioequivalence based on (90% CI):* Ezetimibe (unconjugated), Total Ezetimibe (ezetimibe + ezetimibe glucuronide), and simvastatin.

Active ingredient	Famotidine
Dosage form	Film-coated tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period, crossover *in-vivo* under fasting condition. *Analytes to measure*: Famotidine in plasma. *Bioequivalence based on (90% CI):* Famotidine.

Active ingredient	Famotidine
Dosage form	Suspension/Oral
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period, crossover *in-vivo* under fasting condition. *Analytes to measure*: Famotidine in plasma. *Bioequivalence based on (90% CI):* Famotidine.

Active ingredient	Febuxostat
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Febuxostat in plasma. *Bioequivalence based on (90% CI):* Febuxostat.

Active ingredient	Fenofibrate
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Fenofibric acid in plasma. *Bioequivalence based on (90% CI):* Fenofibric acid. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Fexofenadine Hydrochloride
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Fexofenadine in plasma. *Bioequivalence based on (90% CI):* Fexofenadine.

Active ingredient	Fexofenadine Hydrochloride
Dosage form	Orally disintegrating tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Fexofenadine in plasma. *Bioequivalence based on (90% CI):* Fexofenadine.

Active ingredient	Fexofenadine Hydrochloride
Dosage form	Suspension
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Fexofenadine in plasma. *Bioequivalence based on (90% CI):* Fexofenadine.

Active ingredient	Fexofenadine Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Fexofenadine in plasma. *Bioequivalence based on (90% CI):* Fexofenadine.

Active ingredient	Finasteride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Finasteride in plasma. *Bioequivalence based on (90% CI):* Finasteride.

Active ingredient	Fingolimod
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Fingolimod and its active metabolite, Fingolimod-phosphate in whole blood. *Bioequivalence based on (90% CI):* Fingolimod. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Fluconazole
Dosage form	Capsule
Recommended study	Two options: Biowaiver **or** Bioequivalence study. 1. BCS waiver option: (for fluconazole in polymorphic forms II and III): The drug classified as BCS class I, for more information, please see "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Fluconazole in plasma. *Bioequivalence based on (90% CI):* Fluconazole.

Active ingredient	Fluconazole
Dosage form	Tablet
Recommended study	Two options: Biowaiver **or** Bioequivalence study. 1. BCS waiver option: (for fluconazole in polymorphic forms II and III): The drug classified as BCS class I, for more information, please see "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Fluconazole in plasma. *Bioequivalence based on (90% CI):* Fluconazole.

Active ingredient	Fluocinolone Acetonide
Dosage form	Cream; topical
Recommended study	Acceptable comparative physicochemical characterization of the test and Reference formulations of the product to establish that the test product is pharmaceutically equivalent to the reference product with the identical strength.

Active ingredient	Fluorometholone Acetate
Dosage form	Suspension/drops; ophthalmic
Recommended study	Two options: *In vitro* **or** *in vivo* study. 1. *In vitro* option: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q_1/Q_2). B. Acceptable comparative physicochemical/ microstructural characterizations. **Or** 2. Bioequivalence (BE) with Clinical Endpoint Study.

Active ingredient	Fosinopril Sodium
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Metabolite fosinoprilat in plasma. *Bioequivalence based on (90% CI):* Metabolite fosinoprilat.

Active ingredient	Gabapentin
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Gabapentin in plasma. *Bioequivalence based on (90% CI):* Gabapentin.

Active ingredient	Gabapentin
Dosage form	Extended release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Gabapentin in plasma. *Bioequivalence based on (90% CI):* Gabapentin.

Active ingredient	Gabapentin
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Gabapentin in plasma. *Bioequivalence based on (90% CI):* Gabapentin.

Active ingredient	Gatifloxacin
Dosage form	Solution/drops; ophthalmic
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Gatifloxacin
Dosage form	Solution/drops; ophthalmic
Recommended study	Waiver option: The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). In addition, the applicant should also submit data to support comparable physicochemical properties. An in vivo BE study with clinical endpoint is requested for a difference of more than 5% in the amount of any inactive ingredient compared to that of the RLD, or differences in comparative physicochemical characterization data.

Active ingredient	Gefitinib
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Gefitinib in plasma. *Bioequivalence based on (90% CI):* Gefitinib. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Gemifloxacin Mesylate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions *Analytes to measure:* Gemifloxacin in plasma. *Bioequivalence based on (90% CI):* Gemifloxacin.

Active ingredient	Gentamicin Sulfate
Dosage form	Cream; topical
Recommended study	Acceptable comparative physicochemical characterization of the test and reference listed drug (RLD) formulations for each strength of the product to establish that the test product is a comparable Gentamicin topical cream identical in strength to the RLD.

Active ingredient	Gentamicin Sulfate
Dosage form	Ointment; topical
Recommended study	Acceptable comparative physicochemical characterization of the test and reference listed drug (RLD) formulations for each strength of the product to establish that the test product is a comparable Gentamicin topical ointment identical in strength to the RLD.

Active ingredient	Gentamicin Sulfate
Dosage form	Solution/drops; ophthalmic
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Gestodene; Ethinylestradiol
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Gestodene and Ethinylestradiol in plasma. *Bioequivalence based on (90% CI):* Gestodene and Ethinylestradiol.

Active ingredient	Glibenclamide (Glyburide)
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Glibenclamide in plasma. *Bioequivalence based on (90% CI):* Glibenclamide. *Background*: To avoid hypoglycemic episodes in healthy volunteers, the drug products should be administered with 240 mL of 20% glucose solution in water. After dosing, 60 mL of 20% glucose solution should be given to each subject every 15 minutes for the following 4 hours.

Active ingredient	Gliclazide
Dosage form	Prolonged release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Gliclazide in plasma. *Bioequivalence based on (90% CI):* Gliclazide. *Background:* To avoid hypoglycemic episodes in healthy volunteers, the drug products should be administered with 240 mL of a 20% glucose solution in water, followed by 60 mL of the glucose solution administered every 15 min for up to 4 hours after dosing.

Active ingredient	Glimepiride; Metformin
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Glimepiride and Metformin in plasma. *Bioequivalence based on (90% CI):* Glimepiride and Metformin. *Background:* Each dose in the study should be administered with 240 mL of 20% glucose solution to minimize hypoglycemic effects. After dosing, 60 mL of 20% glucose solution should be given to each subject every 15 minutes for the following 4 hours.

Active ingredient	Glimepiride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Glimepiride in plasma. *Bioequivalence based on (90% CI):* Glimepiride. *Background:* Because of the potential for hypoglycemia from using a dose of 4 mg of glimepiride tablets, you should conduct the bioequivalence studies using the 1 mg dose. Each dose in the study should be administered with 240 mL of 20% glucose solution to minimize hypoglycemic effects. After dosing, 60 mL of 20% glucose solution should be given to each subject every 15 minutes for the following 4 hours.

Active ingredient	Glycopyrronium Tosylate
Dosage form	Cloth; topical
Recommended study	Waiver option: The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD).

Active ingredient	Hydralazine
Dosage form	Tablet
Recommended study	Waiver option: For more information, please refer “The SFDA guideline for biowaiver”. *Background:* Hydralazine tablet is a Drug Efficacy Study implementation “DESI” effective drug for which there are no known or suspected bioequivalence problems.

Active ingredient	Hydrochlorothiazide; Olmesartan Medoxomil
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, crossover *in-vivo* under fasting conditions. *Analytes to measure:* Hydrochlorothiazide and Olmesartan in plasma. *Bioequivalence based on (90% CI):* Hydrochlorothiazide and Olmesartan.

Active ingredient	Hydrocortisone
Dosage form	Cream; topical
Recommended study	Acceptable comparative physicochemical characterization of the test and reference listed drug (RLD) formulations for each strength of the product to establish that the test product is a comparable Hydrocortisone topical cream identical in strength to the RLD.

Active ingredient	Hydrocortisone
Dosage form	Solution; topical
Recommended study	Waiver option: The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD).

Active ingredient	Hydrogen Peroxide
Dosage form	Solution; topical
Recommended study	Waiver option: The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD).

Active ingredient	Hydroxychloroquine Sulfate
Dosage form	Tablet
Recommended study	Waiver option: For more information, please refer “The SFDA guideline for biowaiver”. *Background:* Hydroxychloroquine Sulfate tablet is a Drug Efficacy Study implementation “DESI” effective drug for which there are no known or suspected bioequivalence problems.

Active ingredient	Ibrutinib
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, replicate, three or four-period, crossover *in-vivo* under fasting conditions. *Analytes to measure*: Ibrutinib in plasma. *Bioequivalence based on (90% CI):* Ibrutinib.

Active ingredient	Ibrutinib
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, replicate, three or four-period, crossover *in-vivo* under fasting conditions. *Analytes to measure*: Ibrutinib in plasma. *Bioequivalence based on (90% CI):* Ibrutinib.

Active ingredient	Ibuprofen
Dosage form	Capsule
Recommended study	1 study Type of Study: Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to Measure:* Ibuprofen in plasma. *Bioequivalence based on (90% CI):* Ibuprofen

Active ingredient	Ibuprofen
Dosage form	Tablet
Recommended study	1 study Type of Study: Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to Measure:* Ibuprofen in plasma. *Bioequivalence based on (90% CI):* Ibuprofen

Active ingredient	Ibuprofen
Dosage form	Chewable tablet
Recommended study	1 study Type of Study: Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to Measure:* Ibuprofen in plasma. *Bioequivalence based on (90% CI):* Ibuprofen

Active ingredient	Ibuprofen
Dosage form	Suspension
Recommended study	1 study Type of Study: Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to Measure:* Ibuprofen in plasma. *Bioequivalence based on (90% CI):* Ibuprofen

Active ingredient	Imatinib
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **Or** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Imatinib in plasma. *Bioequivalence based on (90% CI):* Imatinib.

Active ingredient	Indapamide
Dosage form	Sustained Release Tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Indapamide in whole blood or plasma. *Bioequivalence based on (90% CI):* Indapamide.

Active ingredient	Irbesartan; Hydrochlorothiazide
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Hydrochlorothiazide and Irbesartan in plasma. *Bioequivalence based on (90% CI):* Hydrochlorothiazide and Irbesartan.

Active ingredient	Irbesartan
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Irbesartan in plasma. *Bioequivalence based on (90% CI):* Irbesartan.

Active ingredient	Isoniazid
Dosage form	Tablet
Recommended study	Waiver option: For more information, please refer “The SFDA guideline for biowaiver”. *Background:* Isoniazid tablet is a Drug Efficacy Study implementation “DESI” effective drug for which there are no known or suspected bioequivalence problems.

Active ingredient	Isosorbide Mononitrate
Dosage form	Extended release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under Fed conditions. *Analytes to measure:* Isosorbide mononitrate in plasma. *Bioequivalence based on (90% CI):* Isosorbide Mononitrate.

Active ingredient	Isotretinoin
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Isotretinoin in plasma. *Bioequivalence based on (90% CI):* Isotretinoin. *Background:* Isotretinoin is an endogenous substance, the plasma concentrations of isotretinoin should be corrected for baseline endogenous levels by subtracting the mean pre-dose baseline value (average of at least three pre-dose values, e.g. -10, -2, and 0 hours).

Active ingredient	Ivabradine Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Ivabradine and its active metabolite, N-desmethylated derivative, in plasma. *Bioequivalence based on (90% CI):* Ivabradine.

Active ingredient	Ivermectin
Dosage form	Lotion; topical
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Ketoconazole
Dosage form	Foam aerosol; topical
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: A. Same active ingredient in the same concentration and dosage form as the Reference Listed Drug (RLD) and must not have an inactive ingredient or other change in formulation from the RLD that may significantly affect systemic or local availability. B. Comparative assay of the test and reference product. **Or** 2. Bioequivalence (BE) Study with Clinical Endpoint.

Active ingredient	Lacosamide
Dosage form	Tablet
Recommended study	Two options: Biowaiver **or** bioequivalence study. 1. BCS waiver option: The drug classified as BCS class I, for more information, please refer to "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: *Type of Study:* Single-dose, two-treatment, two-period crossover in-vivo under fasting conditions. *Analytes to measure:* Lacosamide in plasma. *Bioequivalence based on (90% CI):* Lacosamide.

Active ingredient	Lamotrigine
Dosage form	Chewable dispersible tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Lamotrigine in plasma. *Bioequivalence based on (90% CI):* Lamotrigine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Lamotrigine
Dosage form	Extended release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Lamotrigine in plasma. *Bioequivalence based on (90% CI):* Lamotrigine.

Active ingredient	Lamotrigine
Dosage form	Orally disintegrating tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Lamotrigine in plasma. *Bioequivalence based on (90% CI):* Lamotrigine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Lamotrigine
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Lamotrigine in plasma. *Bioequivalence based on (90% CI):* Lamotrigine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Lapatinib
Dosage form	Tablet
Recommended study	2 studies *Type of Studies:* Multiple-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Multiple -dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Lapatinib in plasma. *Bioequivalence based on (90% CI):* Lapatinib.

Active ingredient	Latanoprost
Dosage form	Solution/drops; ophthalmic
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Latanoprostene Bunod
Dosage form	Solution/drops; ophthalmic
Recommended study	Two options: *In vitro* approach **<u>or</u>** *in vivo* bioequivalence study. 1. <u>*In vitro* approach:</u> To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. **<u>Or</u>** 2. <u>Bioequivalence study with clinical endpoint.</u>

Active ingredient	Ledipasvir; Sofosbuvir
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Ledipasvir and sofosbuvir in plasma. *Bioequivalence based on (90% CI):* Ledipasvir and sofosbuvir. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Leflunomide
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Leflunomide's metabolite A77 1726, in plasma. *Bioequivalence based on (90% CI):* The metabolite of leflunomide, A77 1726. *Background:* • AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence". • Since the half-life of the metabolite A77 1726 is very long, you considered bioequivalence studies with parallel designs.

Active ingredient	Lenalidomide
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Lenalidomide in plasma. *Bioequivalence based on (90% CI):* Lenalidomide.

Active ingredient	Lercanidipine Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* enantiomers S- and R- in plasma Lercanidipine. *Bioequivalence based on (90% CI):* Both enantiomers S- and R-Lercanidipine. *Background:* Lercanidipine considered as a highly variable drug (i.e., within- subject variability ≥ 30%).

Active ingredient	Letrozole
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Letrozole in plasma. *Bioequivalence based on (90% CI):* Letrozole. *Background*: AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Levetiracetam
Dosage form	Extended release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Levetiracetam in plasma. *Bioequivalence based on (90% CI):* Levetiracetam.

Active ingredient	Levetiracetam
Dosage form	Tablet
Recommended study	Two options: Biowaiver **or** bioequivalence study. 1. BCS waiver option: The drug classified as BCS class I, for more information, please refer to "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Levetiracetam using an achiral assay. *Bioequivalence based on (90% CI):* Levetiracetam.

Active ingredient	Levocetirizine Dihydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Levocetirizine in plasma using an achiral assay. *Bioequivalence based on (90% CI):* Levocetirizine.

Active ingredient	Levodopa; Carbidopa; Entacapone
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Levodopa, Carbidopa and Entacapone in plasma. *Bioequivalence based on (90% CI):* Levodopa, Carbidopa and Entacapone. *Background:* Entacapone considered as a highly variable drug (i.e., within- subject variability ≥ 30%).

Active ingredient	Levofloxacin
Dosage form	Tablet
Recommended study	Two options: Biowaiver **or** bioequivalence study. 1. BCS waiver option: The drug classified as BCS class I, for more information, please refer to "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: Type *of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Levofloxacin in plasma, using an achiral assay. *Bioequivalence based on (90% CI):* Levofloxacin.

Active ingredient	Levonorgestrel
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Levonorgestrel in plasma. *Bioequivalence based on (90% CI):* Levonorgestrel. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Levothyroxine Sodium
Dosage form	Capsule
Recommended study	1 study *Type of Study*: Single-dose, two-treatment, fully replicate, four-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Levothyroxine in serum. *Bioequivalence based on (90% CI):* Baseline-corrected levothyroxine. *Background:* Levothyroxine considered as a Narrow therapeutic index (NTI) drug.

Active ingredient	Levothyroxine Sodium
Dosage form	Tablet
Recommended study	1 study *Type of Study*: Single-dose, two-treatment, fully replicate, four-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Levothyroxine in serum. *Bioequivalence based on (90% CI):* Baseline-corrected levothyroxine. *Background:* Levothyroxine considered as a Narrow therapeutic index (NTI) drug.

Active ingredient	Lidocaine
Dosage form	Ointment; topical
Recommended study	*In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization.

Active ingredient	Lifitegrast
Dosage form	Solution/drops; ophthalmic
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Linezolid
Dosage form	Suspension
Recommended study	Two options: Biowaiver **or** bioequivalence study. 1. BCS waiver option: The drug classified as BCS class I, for more information, please refer to "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: Type *of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Linezolid in plasma. *Bioequivalence based on (90% CI):* Linezolid.

Active ingredient	Linezolid
Dosage form	Tablet
Recommended study	Two options: Biowaiver **or** bioequivalence study. 1. BCS waiver option: The drug classified as BCS class I, for more information, please refer to "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: Type *of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Linezolid in plasma. *Bioequivalence based on (90% CI):* Linezolid.

Active ingredient	Lisinopril
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Lisinopril in plasma. *Bioequivalence based on (90% CI):* Lisinopril.

Active ingredient	Lithium Carbonate
Dosage form	Capsule
Recommended study	1 Study Type: Single dose, two-way, two-period, randomized, crossover *in vivo* study under fed conditions. *Analytes to measure:* Lithium in plasma. *Bioequivalence based on 90% IC:* Lithium. *Background:* Lithium Carbonate considered as a Narrow therapeutic index (NTI) drug.

Active ingredient	Lithium Carbonate
Dosage form	Tablet
Recommended study	1 Study Type: Single dose, two-way, two-period, randomized, crossover *in vivo* study under fed conditions. *Analytes to measure:* Lithium in plasma. *Bioequivalence based on 90% IC:* Lithium. *Background:* Lithium Carbonate considered as a Narrow therapeutic index (NTI) drug.

Active ingredient	Lopinavir; Ritonavir
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Lopinavir, Ritonavir in plasma. *Bioequivalence based on (90% CI):* Lopinavir and Ritonavir.

Active ingredient	Loratadine
Dosage form	Capsules
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Loratadine and its metabolite descarboethoxyloratadine (desloratadine) in plasma. *Bioequivalence based on (90% CI):* Loratadine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Loratadine
Dosage form	Chewable tablets
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Loratadine and its metabolite descarboethoxyloratadine (desloratadine) in plasma. *Bioequivalence based on (90% CI):* Loratadine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Loratadine
Dosage form	Orally disintegrating tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Loratadine and its metabolite descarboethoxyloratadine (desloratadine) in plasma. *Bioequivalence based on (90% CI):* Loratadine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Loratadine
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Loratadine and its metabolite descarboethoxyloratadine (desloratadine) in plasma. *Bioequivalence based on (90% CI):* Loratadine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Lornoxicam
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Lornoxicam in plasma. *Bioequivalence based on (90% CI):* Lornoxicam.

Active ingredient	Losartan Potassium; Hydrochlorothiazide
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Hydrochlorothiazide, losartan, and its carboxylic metabolite in plasma. *Bioequivalence based on (90% CI):* Losartan and Hydrochlorothiazide.

Active ingredient	Losartan Potassium
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Losartan and the metabolite carboxylic acid in plasma. *Bioequivalence based on (90% CI):* Losartan.

Active ingredient	Loteprednol Etabonate
Dosage form	Gel; ophthalmic
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Loteprednol Etabonate
Dosage form	Ointment; ophthalmic
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Loteprednol Etabonate
Dosage form	Suspension/drops; ophthalmic
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Luliconazole
Dosage form	Cream; topical
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). D. Acceptable *in vitro* permeation test (*IVPT*). **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Lurasidone
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Lurasidone in plasma. *Bioequivalence based on (90% CI):* Lurasidone.

Active ingredient	Malathion
Dosage form	Lotion; Topical
Recommended study	Two options: waiver **<u>or</u>** *in vivo* bioequivalence study. 1. <u>Waiver option:</u> The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). **<u>Or</u>** 2. <u>*In vivo* bioequivalence study.</u>

Active ingredient	Mebeverine Hydrochloride
Dosage form	Sustained release capsule
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in vivo* under fed conditions. *Analytes to measure:* Desmethyl mebeverine acid, Veratric acid, Mebeverine acid and Desmethyl mebeverine alcohol. *Bioequivalence based on (90% CI):* Desmethyl mebeverine acid Veratric acid.

Active ingredient	Methimazole
Dosage form	Tablets/ Oral
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Methimazole in plasma. *Bioequivalence based on (90% CI):* Methimazole.

Active ingredient	Meloxicam
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Meloxicam in plasma. *Bioequivalence based on (90% CI):* Meloxicam. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Meloxicam
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Meloxicam in plasma. *Bioequivalence based on (90% CI):* Meloxicam. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Memantine Hydrochloride
Dosage form	Extended release capsule
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in vivo* under fed conditions. *Analytes to measure:* Memantine in plasma. *Bioequivalence based on (90% CI):* Memantine.

Active ingredient	Memantine Hydrochloride
Dosage form	Tablet
Recommended study	Two options: Biowaiver **or** bioequivalence study. 1. BCS waiver option: The drug classified as BCS class I, for more information, please see "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: *Type of Study:* Single-dose, two-treatment, two-period crossover *in vivo* under fasting conditions. *Analytes to measure:* Memantine in plasma. *Bioequivalence based on (90% CI):* Memantine.

Active ingredient	Mesalazine (Mesalamine)
Dosage form	Delayed Release Tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. And Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Mesalazine in plasma. *Bioequivalence based on (90% CI):* Mesalazine.

Active ingredient	Mesalazine (Mesalamine)
Dosage form	Extended release capsule
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in vivo* under fed conditions. *Analytes to measure:* Mesalazine in plasma. *Bioequivalence based on (90% CI):* Mesalazine.

Active ingredient	Metformin; Glibenclamide (Glyburide)
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in vivo* under fed conditions. *Analytes to measure:* Metformin and Glyburide in plasma. *Bioequivalence based on (90% CI):* Metformin and Glyburide. *Background:* To avoid hypoglycemic episodes in healthy volunteers, the drug products should be administered with 240 mL of a 20% glucose solution in water, followed by 60 mL of the glucose solution administered every 15 min for up to 4 hours after dosing.

Active ingredient	Metformin Hydrochloride
Dosage form	Extended release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in vivo* under fed conditions. *Analytes to measure:* Metformin in plasma. *Bioequivalence based on (90% CI):* Metformin *Background:* To avoid hypoglycemic episodes in healthy volunteers, the drug products should be administered with 240 mL of a 20% glucose solution in water, followed by 60 mL of the glucose solution administered every 15 min for up to 4 hours after dosing.

Active ingredient	Metformin Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in vivo* under fed conditions. *Analytes to measure:* Metformin in plasma. *Bioequivalence based on (90% CI):* Metformin. *Background:* To avoid hypoglycemic episodes in healthy volunteers, the drug products should be administered with 240 mL of a 20% glucose solution in water, followed by 60 mL of the glucose solution administered every 15 min for up to 4 hours after dosing.

Active ingredient	Methotrexate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Methotrexate in plasma. *Bioequivalence based on (90% CI):* Methotrexate. *Background:* Methotrexate 2.5 mg does not exhibit linearity of pharmacokinetics.

Active ingredient	Metoprolol Succinate
Dosage form	Extended release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in vivo* under fed conditions. *Analytes to measure:* Metoprolol in plasma. *Bioequivalence based on (90% CI):* Metoprolol.

Active ingredient	Metoprolol Tartrate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Metoprolol in plasma. *Bioequivalence based on (90% CI):* Metoprolol.

Active ingredient	Metronidazole
Dosage form	Cream; topical
Recommended study	Two options: *In vitro* **or** *in vivo* study. 1. *In vitro* option: To qualify for the *in vitro* option for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (IVRT). D. Acceptable *in vitro* permeation test (IVPT). **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Metronidazole
Dosage form	Gel; Topical
Recommended study	Two options: *In-vitro* **<u>or</u>** *in-vivo* study. 1. *<u>In-vitro</u>* <u>option:</u> To qualify for the in vitro option for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable in vitro release test (IVRT). **<u>Or</u>** 2. <u>Bioequivalence study with clinical endpoint.</u>

Active ingredient	Metronidazole
Dosage form	Lotion; topical
Recommended study	Two options: *In-vitro* **or** *in-vivo* study. 1. *In vitro* option: To qualify for the in vitro option for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). D. Acceptable *in vitro* permeation test (*IVPT*). **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Metronidazole Benzoate
Dosage form	Suspension
Recommended study	Two options: Biowaiver **or** bioequivalence study 1. BCS waiver option: The drug classified as BCS class I, for more information, please see "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: *Type of Study:* Single-dose, two-treatment, two-period crossover *in vivo* under fasting conditions. *Analytes to measure:* Metronidazole in plasma. *Bioequivalence based on (90% CI):* Metronidazole.

Active ingredient	Metronidazole
Dosage form	Tablet
Recommended study	Two options: Biowaiver **or** Bioequivalence study. 1. BCS waiver option: The drug classified as BCS class I, for more information, please see "The SFDA guideline for biowaiver " **Or** 2. Bioequivalence study: *Type of Study:* Single-dose, two-treatment, two-period crossover *in vivo* under fasting conditions. *Analytes to measure:* Metronidazole in plasma. *Bioequivalence based on (90% CI):* Metronidazole.

Active ingredient	Miglustat
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-way crossover *in-vivo* under fasting conditions. *Analytes to measure:* Miglustat in plasma. *Bioequivalence based on (90% CI):* Miglustat.

Active ingredient	Minocycline Hydrochloride
Dosage form	Extended release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in vivo* under fed conditions. *Analytes to measure:* Minocycline in plasma. *Bioequivalence based on (90% CI):* Minocycline.

Active ingredient	Minoxidil
Dosage form	Aerosol; foam/ topical
Recommended study	Two options: Biowaiver **or** *in vivo* study. 1. Waiver option: The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). If inactive ingredients of test product differ from the RLD or are present in significantly different amounts, the applicant must identify and characterize the differences and provide information demonstrating that the differences do not affect the safety or efficacy. **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Minoxidil
Dosage form	Solution; topical
Recommended study	Waiver option: The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). If inactive ingredients of test product differ from the RLD or are present in significantly different amounts, the applicant must identify and characterize the differences and provide information demonstrating that the differences do not affect the safety or efficacy.

Active ingredient	Mirtazapine
Dosage form	Orally disintegrating tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Mirtazapine in plasma. *Bioequivalence based on (90% CI):* Mirtazapine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Mirtazapine
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in vivo* under fasting conditions. *Analytes to measure:* Mirtazapine in plasma. *Bioequivalence based on (90% CI):* Mirtazapine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Mometasone Furoate
Dosage form	Lotion; topical
Recommended study	Two options: Waiver **or** *in vivo* bioequivalence study. 1. Waiver option: The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). If inactive ingredients of test product differ from the RLD or are present in significantly different amounts, the applicant must identify and characterize the formulation differences and provide information demonstrating that the differences do not affect the safety or efficacy. **Or** 2. *In vivo* option: *Type of Studies:* A. Pilot vasoconstrictor study. **And** B. Pivotal vasoconstrictor study.

Active ingredient	Montelukast Sodium
Dosage form	Chewable tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, crossover *in-vivo* under fasting conditions. *Analytes to measure:* Montelukast in plasma. *Bioequivalence based on (90% CI):* Montelukast.

Active ingredient	Montelukast Sodium
Dosage form	Granules
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, crossover *in-vivo* under fasting conditions. *Analytes to measure:* Montelukast in plasma. *Bioequivalence based on (90% CI):* Montelukast.

Active ingredient	Montelukast Sodium
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, crossover *in-vivo* under fasting conditions. *Analytes to measure:* Montelukast in plasma. *Bioequivalence based on (90% CI):* Montelukast.

Active ingredient	Moxifloxacin Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, crossover *in-vivo* under fasting conditions. *Analytes to measure:* Moxifloxacin in plasma. *Bioequivalence based on (90% CI):* Moxifloxacin.

Active ingredient	Moxifloxacin Hydrochloride
Dosage form	Solution/drops; ophthalmic
Recommended study	Two options: *In vitro* approach **or** *in vivo* bioequivalence study. 1. *In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Mycophenolate Mofetil
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, crossover *in-vivo* under fasting conditions. *Analytes to measure:* Mycophenolate mofetil, and the active metabolite, mycophenolic acid (MPA) in plasma. *Bioequivalence based on (90% CI):* Mycophenolic acid (MPA).

Active ingredient	Mycophenolate Mofetil
Dosage form	Suspension
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, crossover *in-vivo* under fasting conditions. *Analytes to measure:* Mycophenolate mofetil, and the active metabolite, mycophenolic acid (MPA) in plasma. *Bioequivalence based on (90% CI):* mycophenolic acid (MPA).

Active ingredient	Mycophenolate Mofetil
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, crossover *in-vivo* under fasting conditions. *Analytes to measure:* Mycophenolate mofetil, and the active metabolite, mycophenolic acid (MPA) in plasma. *Bioequivalence based on (90% CI):* mycophenolic acid (MPA).

Active ingredient	Naproxen; Esomeprazole
Dosage form	Delayed release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Esomeprazole in plasma using an achiral assay, and naproxen in plasma. *Bioequivalence based on (90% CI):* Naproxen and Esomeprazole. *Background:* Esomeprazole considered as a highly variable drug.

Active ingredient	Nebivolol Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Racemic Nebivolol. *Bioequivalence based on (90% CI):* Racemic Nebivolol.

Active ingredient	Nepafenac
Dosage form	Suspension; ophthalmic
Recommended study	Three options 1. *In vitro* studies: To qualify for the *in vitro* option for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). **Or** 2. Pharmacokinetic Bioequivalence studies. **Or** 3. Bioequivalence study with clinical endpoint.

Active ingredient	Netarsudil Dimesylate
Dosage form	Solution/drops; ophthalmic
Recommended study	*In vitro* option: To qualify for the *in vitro* option for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. An *in vivo* BE study is requested for a difference of more than 5% in the amount of any inactive ingredient compared to that of the RLD, or differences in comparative physicochemical characterization data.

Active ingredient	Nystatin and Triamcinolone Acetonide
Dosage form	Cream; topical
Recommended study	Acceptable comparative physicochemical characterization of the test and reference formulations of the product to establish that the test product is pharmaceutically equivalent to the reference product with the identical strength.

Active ingredient	Nystatin and Triamcinolone Acetonide
Dosage form	Ointment; topical
Recommended study	Acceptable comparative physicochemical characterization of the test and reference formulations of the product to establish that the test product is pharmaceutically equivalent to the reference product with the identical strength.

Active ingredient	Octreotide acetate
Dosage form	Delayed release capsule
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions **And** Single-dose, two-treatment, replicate, crossover *in-vivo* under fed conditions. *Analytes to Measure:* Octreotide in plasma. *Bioequivalence based on (90% CI):* Octreotide

Active ingredient	Ofloxacin
Dosage form	Solution/drops; ophthalmic
Recommended study	*In vitro* option: To qualify for the *in vitro* option for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. An *in vivo* BE study is requested for a difference of more than 5% in the amount of any inactive ingredient compared to that of the RLD, or differences in comparative Physicochemical.

Active ingredient	Olanzapine
Dosage form	Orally disintegrating tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, crossover *in-vivo* under fasting conditions. *Analytes to measure:* Olanzapine in plasma. *Bioequivalence based on (90% CI):* Olanzapine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Olanzapine
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, crossover *in-vivo* under fasting conditions. *Analytes to measure:* Olanzapine in plasma. *Bioequivalence based on (90% CI):* Olanzapine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Olmesartan Medoxomil
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, crossover *in vivo* under fasting conditions. *Analytes to measure:* Olmesartan in plasma. *Bioequivalence based on (90% CI):* Olmesartan.

Active ingredient	Olopatadine Hydrochloride
Dosage form	Solution/drops; ophthalmic
Recommended study	Two options: *In vitro* **<u>or</u>** *in vivo* bioequivalence study. 1. <u>*In vitro* option:</u> To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. **<u>Or</u>** 2. <u>Bioequivalence study with clinical endpoint.</u>

Active ingredient	Omeprazole; Sodium Bicarbonate
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Omeprazole in plasma. *Bioequivalence based on (90% CI):* Omeprazole. *Background:* Omeprazole considered as a highly variable drug.

Active ingredient	Omeprazole
Dosage form	Delayed release capsule
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Omeprazole in plasma. *Bioequivalence based on (90% CI):* Omeprazole. *Background:* Omeprazole considered as a highly variable drug.

Active ingredient	Ondansetron Hydrochloride Dihydrate
Dosage form	Tablet
Recommended study	Two options: Biowaiver **<u>or</u>** bioequivalence study 1. <u>BCS waiver option:</u> The drug classified as BCS class I, for more information, please see "The SFDA guideline for biowaiver". **<u>Or</u>** 2. <u>Bioequivalence study:</u> *Type of Study:* Single-dose, two-treatment, two-period crossover *in vivo* under fasting conditions. *Analytes to measure:* Ondansetron in plasma. *Bioequivalence based on (90% CI):* Ondansetron.

Active ingredient	Orlistat
Dosage form	Capsule
Recommended study	1 study *Type of Study: In vivo* bioequivalence (BE) study with pharmacodynamic (PD) Endpoints, Multiple-dose, 3-way crossover consisting of two doses of reference product and at least one dose of the test product. The product should be administered as per the reference product labeling.

Active ingredient	Ornidazole
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Ornidazole in plasma. *Bioequivalence based on (90% CI):* Ornidazole.

Active ingredient	Oseltamivir Phosphate
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Oseltamivir and its metabolite, oseltamivir carboxylate in plasma. *Bioequivalence based on (90% CI):* Oseltamivir.

Active ingredient	Oxcarbazepine
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Oxcarbazepine and active metabolite 10-monohydroxy derivative (MHD) in plasma. *Bioequivalence based on (90% CI):* Oxcarbazepine.

Active ingredient	Ozenoxacin
Dosage form	Cream; topical
Recommended study	Two options: *In vitro* **or** *in vivo* study. 1. *In vitro* option: To qualify for the *in vitro* option for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). D. Acceptable *in vitro* permeation test (*IVPT*). **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Palbociclib
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Palbociclib in plasma. *Bioequivalence based on (90% CI):* Palbociclib. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Palbociclib
Dosage form	Film coated Tablets
Recommended study	2 studies *Type of Study:* Single-dose, two-treatment, two-sequence, two-period, crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-sequence, two-period, crossover *in-vivo* under fasting study under conditions of multiple day pre-treatment with a proton pump inhibitor (PPI). *Analytes to measure:* Palbociclib in plasma. *Bioequivalence based on (90% CI):* Palbociclib

Active ingredient	Paliperidone
Dosage form	Prolonged-release tablet
Recommended study	2 studies *Type of study:* Single-dose, two-treatment, replicate, three or four -period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, replicate, three or four -period crossover *in-vivo* under fed conditions. *Analytes to measure:* Paliperidone in plasma. *Bioequivalence based on (90% CI):* Paliperdone *Background:* Paliperidone considered as Highly variable drug (i.e., within- subject variability ≥ 30%).

Active ingredient	Pantoprazole Sodium
Dosage form	Delayed release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Pantoprazole in plasma. *Bioequivalence based on (90% CI):* Pantoprazole. *Background:* Pantoprazole considered as a highly variable drug.

Active ingredient	Paracetamol
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Biowaiver option For more information, please refer “The SFDA guideline for biowaiver”. *Background:* Paracetamol Tablets are a Drug Efficacy Study implementation “DESI” effective drug for which there are no known or suspected bioequivalence problems.

Active ingredient	Paracetamol; Codeine phosphate; Caffeine
Dosage form	Soluble tablet
Recommended study	1 study Type of Study: Biowaiver option For more information, please refer “The SFDA guideline for biowaiver”. Background: Paracetamol; Codeine phosphate; Caffeine Soluble Tablets are a Drug Efficacy Study implementation “DESI” effective drug for which there are no known or suspected bioequivalence problems.

Active ingredient	Paroxetine Hydrochloride
Dosage form	Extended release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in vivo* under fed conditions. *Analytes to measure:* Paroxetine in plasma. *Bioequivalence based on (90% CI):* Paroxetine.

Active ingredient	Paroxetine Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Paroxetine in plasma. *Bioequivalence based on (90% CI):* Paroxetine.

Active ingredient	Pazopanib Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Pazopanib in plasma. *Bioequivalence based on (90% CI):* Pazopanib. *Background:* - AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence". - For drugs with a less than proportional increase in AUC with increasing dose over the therapeutic dose range, bioequivalence should in most cases be established both at the highest strength and at the lowest strength (or a strength in the linear range), i.e. in this situation, two bioequivalence studies are needed.

Active ingredient	Penciclovir
Dosage form	Cream; topical
Recommended study	*In vitro* approach: To qualify for the in vitro approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). D. Acceptable *in vitro* permeation test (*IVPT*).

Active ingredient	Perindopril Arginine
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Perindopril and the active metabolite, perindoprilat in plasma. *Bioequivalence based on (90% CI):* Perindopril.

Active ingredient	Perindopril Erbumine
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Perindopril and the active metabolite, perindoprilat in plasma. *Bioequivalence based on (90% CI):* Perindopril.

Active ingredient	Perindopril erbumine; Indapamide
Dosage form	Tablet
Recommended study	1 study Type of Study: Single-dose, two-treatment, two-period crossover in-vivo under fasting conditions. Analytes to measure: Perindopril and the active metabolite, perindoprilat in plasma and Indapamide in whole blood . Bioequivalence based on (90% CI): Perindopril and Indapamide.

Active ingredient	Pilocarpine Hydrochloride
Dosage form	Solution; ophthalmic
Recommended study	Two options: Waiver **or** *in vivo* bioequivalence study. 1. Waiver option: The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). **Or** 2. *In vivo* bioequivalence study.

Active ingredient	Pioglitazon Hydrochloride; Metformine Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Pioglitazone and its active metabolite M-IV and Metformin in plasma. *Bioequivalence based on (90% CI):* Pioglitazone and Metformin. *Background*: To avoid hypoglycemic episodes in healthy volunteers, the drug products should be administered with 240 mL of a 20% glucose solution in water, followed by 60 mL of the glucose solution administered every 15 min for up to 4 hours after dosing.

Active ingredient	Pioglitazon Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Pioglitazone and active metabolite M-IV in plasma. *Bioequivalence based on (90% CI):* Pioglitazone. *Background*: To avoid hypoglycemic episodes in healthy volunteers, the drug products should be administered with 240 mL of a 20% glucose solution in water, followed by 60 mL of the glucose solution administered every 15 min for up to 4 hours after dosing.

Active ingredient	Pirfenidone
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Pirfenidone in plasma. *Bioequivalence based on (90% CI):* Pirfenidone. *Background:* -The liver enzymes, including alanine aminotransferase (ALT), alanine transaminase (AST), and bilirubin should be checked at baseline and monitored during treatment. -Adequate precautions should be taken to avoid or minimize the photosensitivity associated with the product's use.

Active ingredient	Pirfenidone
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Pirfenidone in plasma. *Bioequivalence based on (90% CI):* Pirfenidone. *Background:* -The liver enzymes, including alanine aminotransferase (ALT), alanine transaminase (AST), and bilirubin should be checked at baseline and monitored during treatment. -Adequate precautions should be taken to avoid or minimize the photosensitivity associated with the product's use.

Active ingredient	Pitavastatin
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Pitavastatin in plasma. *Bioequivalence based on (90% CI):* Pitavastatin.

Active ingredient	Podofilox
Dosage form	Solution; topical
Recommended study	Two options: Waiver **or** bioequivalence study with clinical endpoint. 1. Waiver option: The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). If inactive ingredients of test product differ from the RLD or are present in significantly different amounts, the applicant must identify and characterize the formulation differences and provide information demonstrating that the differences do not affect the safety or efficacy. **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Posaconazole
Dosage form	Tablet, Delayed Release
Recommended study	2 studies *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fed conditions. *Analytes to measure*: Posaconazole in plasma. *Bioequivalence based on (90% CI):* Posaconazole. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Posaconazole
Dosage form	Oral Suspension
Recommended study	1 study *Type of Study:* single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fed conditions. *Analytes to measure*: Posaconazole in plasma. *Bioequivalence based on (90% CI):* Posaconazole. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Pramipexole Dihydrochloride
Dosage form	Extended-release, tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to Measure:* Pramipexole in plasma. *Bioequivalence based on (90% CI):* Pramipexole

Active ingredient	Prasugrel Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Metabolite R-138727 and metabolite R-95913 in plasma. *Bioequivalence based on (90% CI):* Metabolite R-138727 and metabolite R-95913 in plasma. *Background:* Active metabolite (R-138727) is not stable in aqueous solution and plasma. Provide detailed information for sample collection, processing, stabilization, and validation of analysis.

Active ingredient	Prednisolone Acetate
Dosage form	Suspension; ophthalmic drops
Recommended study	Two options: *In vitro* **or** *in vivo* bioequivalence study with pharmacokinetic (PK) endpoints. 1. *In vitro* option: To qualify for the *in vitro* option for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (IVRT). **Or** 2. *In vivo* bioequivalence study with pharmacokinetic (PK) endpoints.

Active ingredient	Prednisolone
Dosage form	Effervescent tablet
Recommended study	Two options: Biowaiver **or** bioequivalence study. 1. BCS waiver option: The drug classified as BCS class I, for more information, please refer to "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Prednisolone in plasma. *Bioequivalence based on (90% CI):* Prednisolone.

Active ingredient	Pregabalin
Dosage form	Tablet
Recommended study	Two options: Biowaiver **or** bioequivalence study. 1. BCS waiver option: The drug classified as BCS class I, for more information, please refer to "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Pregabalin in plasma. *Bioequivalence based on (90% CI):* Pregabalin.

Active ingredient	Propylthiouracil
Dosage form	Tablet
Recommended study	1 study Type of Study: Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. Analytes to measure: Propylthiouracil in plasma. Bioequivalence based on (90% CI): Propylthiouracil.

Active ingredient	Prucalopride succinate
Dosage form	Tablet
Recommended study	1 Study Type: Single dose, two-way, two-period, randomized, crossover *in vivo* study under fasting conditions. *Analytes to measure:* Prucalopride in plasma. *Bioequivalence based on 90% IC:* Prucalopride. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Quetiapine Fumarate
Dosage form	Extended release tablets
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in vivo* under fed conditions. *Analytes to measure:* Quetiapine in plasma. *Bioequivalence based on (90% CI):* Quetiapine.

Active ingredient	Quetiapine
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Quetiapine in plasma. *Bioequivalence based on (90% CI):* Quetiapine.

Active ingredient	Rabeprazole Sodium
Dosage form	Delayed release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Rabeprazole in plasma. *Bioequivalence based on (90% CI):* Rabeprazole. *Background:* Rabeprazole considered as a highly variable drug.

Active ingredient	Ramipril; Hydrochlorothiazide
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Ramipril and its metabolite, ramiprilat and Hydrochlorothiazide in plasma. *Bioequivalence based on (90% CI):* Ramipril and Hydrochlorothiazide. *Background:* If ramipril can be reliably measured, a confidence interval approach for bioequivalence determination should be used for ramipril. If ramipril cannot be reliably measured, a confidence interval approach for bioequivalence determination should be used for ramiprilat.

Active ingredient	Ramipril
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Ramipril and the metabolite, ramiprilat in plasma. *Bioequivalence based on (90% CI):* Ramipril. *Background:* If ramipril can be reliably measured, a confidence interval approach for bioequivalence determination should be used for ramipril. If ramipril cannot be reliably measured, a confidence interval approach for bioequivalence determination should be used for ramiprilat.

Active ingredient	Ramipril
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Ramipril and the metabolite, ramiprilat in plasma. *Bioequivalence based on (90% CI):* Ramipril. *Background:* If ramipril can be reliably measured, a confidence interval approach for bioequivalence determination should be used for ramipril. If ramipril cannot be reliably measured, a confidence interval approach for bioequivalence determination should be used for ramiprilat.

Active ingredient	Repaglinide
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Repaglinide in plasma. *Bioequivalence based on (90% CI):* Repaglinide. *Background:* To avoid hypoglycemic episodes in healthy volunteers, the drug products should be administered with 240 mL of a 20% glucose solution in water, followed by 60 mL of the glucose solution administered every 15 min for up to 4 hours after dosing.

Active ingredient	Ribavirin
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Ribavirin in plasma. *Bioequivalence based on (90% CI):* Ribavirin.

Active ingredient	Ribavirin
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Ribavirin in plasma. *Bioequivalence based on (90% CI):* Ribavirin.

Active ingredient	Rilpivirine Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Rilpivirine in plasma. *Bioequivalence based on (90% CI):* Rilpivirine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Risperidone
Dosage form	Orally disintegrating tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Risperidone in plasma. *Bioequivalence based on (90% CI):* Risperidone.

Active ingredient	Risperidone
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Risperidone in plasma. *Bioequivalence based on (90% CI):* Risperidone.

Active ingredient	Rivaroxaban
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed/fasting conditions. (refer to the below information) *Analytes to measure:* Rivaroxaban in plasma. *Bioequivalence based on (90% CI):* Rivaroxaban. *Background*: Since there is a different food effect resulting in different food recommendations for the lower (2.5 and 10 mg) and the higher (15 and 20 mg) strengths, fasting study should be conducted for the lower strengths, and fed study for the higher strengths.

Active ingredient	Rivastigmine Tartrate
Dosage form	Capsule
Recommended study	Two options: BCS waiver **or** Bioequivalence study. 1. BCS waiver option: The drug classified as BCS class I, for more information, please refer to "*The SFDA guideline for biowaiver*". **OR** 2. Bioequivalence study: *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Rivastigmine in plasma. *Bioequivalence based on (90% CI):* Rivastigmine.

Active ingredient	Rizatriptan benzoate
Dosage form	Dispersible Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure*: Rizatriptan in plasma. *Bioequivalence based on (90% CI):* Rizatriptan.

Active ingredient	Rizatriptan benzoate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure*: Rizatriptan in plasma. *Bioequivalence based on (90% CI):* Rizatriptan.

Active ingredient	Roflumilast
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-way, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Roflumilast in plasma. *Bioequivalence based on (90% CI):* Roflumilast.

Active ingredient	Rosuvastatin Calcium
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Rosuvastatin in plasma. *Bioequivalence based on (90% CI):* Rosuvastatin.

Active ingredient	Rosuvastatin; Ezetimibe
Dosage form	Tablets
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure*: Rosuvastatin, Ezetimibe (unconjugated) and total ezetimibe (ezetimibe + ezetimibe glucuronide) in plasma. *Bioequivalence based on (90% CI):* Rosuvastatin, Ezetimibe (unconjugated) and Total ezetimibe (ezetimibe + ezetimibe glucuronide).

Active ingredient	Ruxolitinib phosphate
Dosage form	Tablet
Recommended study	Two options: Biowaiver **or** bioequivalence study. *Type of Study:* 1. BCS waiver option: The drug classified as BCS class I, for more information, please refer to "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure*: Ruxolitinib in plasma. *Bioequivalence based on (90% CI):* Ruxolitinib.

Active ingredient	Sertraline Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Sertraline in plasma. *Bioequivalence based on (90% CI):* Sertraline. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Sevelamer Carbonate
Dosage form	Tablet
Recommended study	Two *in vitro* studies *Type of Studies:* *In vitro* equilibrium binding study with and without acid pre-treatment at pH 4 and pH 7. **And** *In vitro* kinetic binding study with and without acid pre-treatment at pH 4 and pH 7. *Analytes to measure:* Unbound phosphate in filtrate (to calculate phosphate bound to resin) *Bioequivalence based on (90% CI):* The Langmuir binding constant k2 from the equilibrium binding study.

Active ingredient	Sildenafil Citrate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Sildenafil and active metabolite, piperazine N-desmethylsildenafil in plasma. *Bioequivalence based on (90% CI):* Sildenafil.

Active ingredient	Silodosin
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Silodosin and its active metabolite, glucouronide conjugate (KMD-3213G). *Bioequivalence based on (90% CI):* Silodosin. *Background:* - Due to safety concerns, the study should be performed using the 4 mg strength. - Subjects should be closely monitored for hypotension.

Active ingredient	Silver Sulfadiazine
Dosage form	Cream; topical
Recommended study	*In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*).

Active ingredient	Simvastatin
Dosage form	Orally disintegrating tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Simvastatin and its beta-hydroxyacid metabolite in plasma. *Bioequivalence based on (90% CI):* Simvastatin.

Active ingredient	Simvastatin
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Simvastatin and its beta-hydroxyacid metabolite in plasma. *Bioequivalence based on (90% CI):* Simvastatin.

Active ingredient	Sirolimus
Dosage form	Tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, full replicate, four-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, full replicate, four-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Sirolimus in whole blood. *Bioequivalence based on (90% CI):* Sirolimus. *Background:* - Sirolimus considered as a Narrow therapeutic index (NTI) drug. - For tablets, dose proportionality has been demonstrated between 2 mg and 5 mg doses. 0.5 mg tablets are not strictly bioequivalent with the higher strengths in terms of C_{max}.

Active ingredient	Sirolimus
Dosage form	Oral solution
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, full replicate, four-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, full replicate, four-period crossover *in-vivo* under fed conditions. *Analytes to Measure:* Sirolimus in whole blood. *Bioequivalence based on (90% CI):* Sirolimus *Background:* Sirolimus considered as a Narrow therapeutic index (NTI) drug.

Active ingredient	Sitagliptin Phosphate; Metformin Hydrochloride
Dosage form	Extended release tablets
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Sitagliptin and metformin in plasma. *Bioequivalence based on (90% CI):* Sitagliptin and metformin. *Background:* The drug products should be administered with 240 mL of a 20% glucose solution in water, followed by 60 mL of the glucose solution administered every 15 minutes for up to 4 hours after dosing.

Active ingredient	Sitagliptin Phosphate; Metformin Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Sitagliptin and metformin in plasma. *Bioequivalence based on (90% CI):* Sitagliptin and metformin. *Background:* The drug products should be administered with 240 mL of a 20% glucose solution in water, followed by 60 mL of the glucose solution administered every 15 minutes for up to 4 hours after dosing.

Active ingredient	Sofosbuvir
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Sofosbuvir in plasma. *Bioequivalence based on (90% CI):* Sofosbuvir.

Active ingredient	Solifenacin Succinate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period, two-way crossover *in-vivo* under fasting conditions. *Analytes to measure:* Solifenacin in plasma. *Bioequivalence based on (90% CI):* Solifenacin. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Sorafenib Tosylate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Sorafenib in plasma. *Bioequivalence based on (90% CI):* Sorafenib. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Spinosad
Dosage form	Suspension; topical
Recommended study	Two options: *In vitro* **or** *in vivo* bioequivalence study with clinical endpoint. 1. *In vitro* option: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Sulfasalazine
Dosage form	Delayed Release Tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Sulfasalazine, and the metabolites sulfapyridine and 5-aminosalicylic (5-ASA) acid (mesalamine) in plasma. *Bioequivalence based on (90% CI):* Sulfasalazine and 5-Aminosalicylic Acid.

Active ingredient	Sumatriptan Succinate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Sumatriptan in plasma. *Bioequivalence based on (90% CI):* Sumatriptan.

Active ingredient	Sunitinib Malate
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Sunitinib in plasma. *Bioequivalence based on (90% CI):* Sunitinib. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Tacrolimus
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Tacrolimus in whole blood. *Bioequivalence based on (90% CI):* Tacrolimus. *Background:* - AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence". - Tacrolimus considered as a Narrow therapeutic index (NTI) drug.

Active ingredient	Tacrolimus
Dosage form	Extended release capsule
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Tacrolimus in whole blood. *Bioequivalence based on (90% CI):* Tacrolimus. *Background:* Tacrolimus considered as a Narrow therapeutic index (NTI) drug.

Active ingredient	Tacrolimus
Dosage form	Ointment; topical
Recommended study	Two options: *In vitro* **or** *in vivo* bioequivalence study with clinical endpoint. 1. *In vitro* option: To qualify for the *in vitro* option for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*). D. Acceptable *in vitro* permeation test (*IVPT*). **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Tadalafil
Dosage form	Tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Tadalafil in plasma. *Bioequivalence based on (90% CI):* Tadalafil. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Tamsulosin Hydrochloride
Dosage form	Controlled release capsule
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Tamsulosin in plasma. *Bioequivalence based on (90% CI):* Tamsulosin.

Active ingredient	Tamsulosin Hydrochloride; Dutasteride
Dosage form	Capsule
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Dutasteride and tamsulosin in plasma. *Bioequivalence based on (90% CI):* Dutasteride and tamsulosin.

Active ingredient	Tavaborole
Dosage form	Solution; topical
Recommended study	Two options: Waiver **or** bioequivalence study with clinical endpoint. 1. Waiver option: The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). If inactive ingredients of test product differ from the RLD or are present in significantly different amounts, the applicant must identify and characterize the formulation differences and provide information demonstrating that the differences do not affect the safety or efficacy. **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Telithromycin
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Telithromycin in plasma. *Bioequivalence based on (90% CI):* Telithromycin.

Active ingredient	Telmisartan; Amlodipine Besylate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover in-vivo under fasting conditions. *Analytes to measure:* Telmisartan and Amlodipine in plasma. *Bioequivalence based on (90% CI):* Telmisartan and Amlodipine. *Background:* - AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence". - Telmisartan considered as a highly variable drug.

Active ingredient	Telmisartan; Hydrochlorothiazide
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Telmisartan and Hydrochlorothiazide in plasma. *Bioequivalence based on (90% CI):* Telmisartan and Hydrochlorothiazide. *Background:* - AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence". - Telmisartan considered as a highly variable drug.

Active ingredient	Telmisartan
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Telmisartan in plasma. *Bioequivalence based on (90% CI):* Telmisartan. *Background:* - AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence". - Telmisartan considered as a highly variable drug.

Active ingredient	Temozolomide
Dosage form	Capsule
Recommended study	Two options: Biowaiver **or** bioequivalence study. 1. BCS waiver option: The drug classified as BCS class I, for more information, please refer to "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Temozolomide in plasma. *Bioequivalence based on (90% CI):* Temozolomide.

Active ingredient	Tenofovir Disoproxil Fumarate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Tenofovir in serum. *Bioequivalence based on (90% CI):* Tenofovir.

Active ingredient	Terbinafine
Dosage form	Cream; topical
Recommended study	1 study *Type of Study:* Bioequivalence study with clinical endpoint.

Active ingredient	Terbinafine
Dosage form	Granules
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Terbinafine in plasma. *Bioequivalence based on (90% CI):* Terbinafine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Terbinafine
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Terbinafine in plasma. *Bioequivalence based on (90% CI):* Terbinafine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Teriflunomide
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Teriflunomide in plasma. *Bioequivalence based on (90% CI):* Teriflunomide. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Testosterone
Dosage form	Solution; metered/ transdermal
Recommended study	Waiver option: To qualify for a waiver of the *in vivo* bioequivalence study requirement, generic product should: A. Be a solution for application to the skin. B. Contain the active drug ingredient, testosterone, in the same concentration and dosage form as the Reference Listed Drug (RLD). C. Contain no differing inactive ingredient or other change in formulation from the RLD that may significantly affect absorption of the active drug ingredient or active moiety.

Active ingredient	Tibolone
Dosage form	Tablet
Recommended study	1 study *Type of study:* Single-dose, two-treatment, replicate, three or four -period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Tibolone in plasma. *Bioequivalence based on (90% CI):* Tibolone. *Background:* Tibolone considered as Highly variable drug (i.e., within- subject variability ≥ 30%).

Active ingredient	Ticagrelor
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Ticagrelor and its active metabolite in plasma. *Bioequivalence based on (90% CI):* Ticagrelor.

Active ingredient	Timolol Maleate
Dosage form	Solution; ophthalmic drops
Recommended study	Two options: Waiver **or** *in vivo* bioequivalence study. 1. Waiver option: • The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). • Acceptable comparative physicochemical characterization. **Or** 2. *In vivo* bioequivalence study with clinical endpoints.

Active ingredient	Tizanidine
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Tizanidine in plasma. *Bioequivalence based on (90% CI):* Tizanidine.

Active ingredient	Tizanidine Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Tizanidine in plasma. *Bioequivalence based on (90% CI):* Tizanidine.

Active ingredient	Tobramycin
Dosage form	Ointment; ophthalmic
Recommended study	*In vitro* approach: To qualify for the *in vitro* approach for this drug product the following criteria should be met: • The test and RLD formulations should be: A. Qualitatively and quantitatively the same (Q1/Q2). B. Acceptable comparative physicochemical characterization. C. Acceptable *in vitro* release test (*IVRT*).

Active ingredient	Tofacitinib citrate
Dosage form	Extended Release Tablet
Recommended study	2 studies *Type of studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. ***And*** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Tofacitinib in plasma. *Bioequivalence based on (90% CI):* Tofacitinib.

Active ingredient	Tofacitinib citrate
Dosage form	Tablet
Recommended study	1 study *Type of study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Tofacitinib in plasma. *Bioequivalence based on (90% CI):* Tofacitinib.

Active ingredient	Topiramate
Dosage form	Extended release capsule
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Topiramate in plasma. *Bioequivalence based on (90% CI):* Topiramate.

Active ingredient	Topiramate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Topiramate in plasma. *Bioequivalence based on (90% CI):* Topiramate. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Toremifene Citrate
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Toremifene in plasma. *Bioequivalence based on (90% CI):* Toremifene. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Torsemide
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Torsemide in plasma. *Bioequivalence based on (90% CI):* Torsemide.

Active ingredient	Tramadol
Dosage form	Extended release capsule
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure (in appropriate biological fluid):* Tramadol in plasma. *Bioequivalence based on (90% CI):* Tramadol.

Active ingredient	Tramadol
Dosage form	Extended release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure (in appropriate biological fluid):* Tramadol in plasma. *Bioequivalence based on (90% CI):* Tramadol.

Active ingredient	Tramadol
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditionss. *Analytes to measure (in appropriate biological fluid):* Tramadol in plasma. *Bioequivalence based on (90% CI):* Tramadol.

Active ingredient	Tranexamic Acid
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Tranexamic Acid in plasma. *Bioequivalence based on (90% CI):* Tranexamic Acid.

Active ingredient	Tretinoin
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions *Analytes to measure:* Tretinoin in plasma. *Bioequivalence based on (90% CI):* Tretinoin. *Background:* Baseline concentrations of tretinoin should be measured. (3 samples taken before the drug products are administered).

Active ingredient	Tretinoin
Dosage form	Cream
Recommended study	1 study *Type of Study:* Randomized, double blind, parallel, placebo controlled, *in vivo* Bioequivalence (BE) with Clinical Endpoint Study. *Analytes to measure:* Not Applicable. *Bioequivalence based on (90% CI):* Clinical endpoint.

Active ingredient	Tretinoin
Dosage form	Gel
Recommended study	1 study *Type of Study:* Randomized, double blind, parallel, placebo controlled, *in vivo* Bioequivalence (BE) with Clinical Endpoint Study. *Analytes to measure:* Not Applicable. *Bioequivalence based on (90% CI):* Clinical endpoint.

Active ingredient	Tretinoin
Dosage form	Solution; Topical
Recommended study	Two options: Waiver **or** bioequivalence study with clinical endpoint. 1. Waiver option: The test product should be qualitatively (Q1) and quantitatively (Q2) the same as the Reference Listed Drug (RLD). If inactive ingredients of test product differ from the RLD or are present in significantly different amounts, the applicant must identify and characterize the formulation differences and provide information demonstrating that the differences do not affect the safety or efficacy. **Or** 2. Bioequivalence study with clinical endpoint.

Active ingredient	Triamcinolone Acetonide
Dosage form	Cream; topical
Recommended study	Acceptable comparative physicochemical characterization of the test and reference listed drug (RLD) formulations for each strength of the product to establish that the test product is a comparable triamcinolone acetonide topical cream identical in strength to the RLD.

Active ingredient	Triamcinolone Acetonide
Dosage form	Lotion; topical
Recommended study	Acceptable comparative physicochemical characterization of the test and reference listed drug (RLD) formulations for each strength of the product to establish that the test product is a comparable triamcinolone acetonide topical cream identical in strength to the RLD.

Active ingredient	Triamcinolone Acetonide
Dosage form	Ointment; topical
Recommended study	Acceptable comparative physicochemical characterization of the test and reference standard (RS) formulations of the product to establish that the test product is pharmaceutically equivalent to the RS with the identical strength.

Active ingredient	Trientine Hydrochloride
Dosage form	Capsule
Recommended study	1 study *Type of study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Trientine and its metabolite, N_1- Acetyitriethyienetetramine, in plasma. *Bioequivalence based on (90% CI):* Trientine.

Active ingredient	Trimetazidine Dihydrochloride
Dosage form	Extended release tablet
Recommended study	2 studies *Type of studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Trimetazidine in plasma. *Bioequivalence based on (90% CI):* Trimetazidine.

Active ingredient	Valaciclovir hydrochloride
Dosage form	Film-coated tablet
Recommended study	1 study Type of Study: Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Valacyclovir and its metabolite, acyclovir *Bioequivalence based on 90% IC:* Valacyclovir *Background:* If valacyclovir cannot be reliably measured, you should analyze the acyclovir data obtained from these studies using the confidence interval approach.

Active ingredient	Valproic acid
Dosage form	Prolonged-release tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions **And** Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Valproic acid in plasma. *Bioequivalence based on (90% CI):* Valproic acid. *Background:* Valproic acid considered as a Narrow therapeutic index (NTI) drug.

Active ingredient	Amlodipine; Hydrochlorothiazide; Valsartan
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Amlodipine, Hydrochlorothiazide and Valsartan in plasma. *Bioequivalence based on(90%CI):* Amlodipine, Hydrochlorothiazide and Valsartan. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Valganciclovir
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, replicate, three or four-period crossover in-vivo under fed conditions. *Analytes to measure:* Valganciclovir and ganciclovir in plasma. *Bioequivalence based on (90% CI):* Valganciclovir. *Background:* Valganciclovir considered as Highly variable drug (i.e., within- subject variability ≥ 30%).

Active ingredient	Hydrochlorothiazide; Valsartan
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Hydrochlorothiazide and Valsartan in plasma. *Bioequivalence based on (90% CI):* Hydrochlorothiazide and Valsartan.

Active ingredient	Valsartan
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Valsartan in plasma. *Bioequivalence based on (90% CI):* Valsartan.

Active ingredient	Vandetanib
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period **crossover or parallel** *in-vivo* under fasting conditions. *Analytes to measure:* Vandetanib in plasma. *Bioequivalence based on (90% CI):* Vandetanib. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Varenicline Tartrate
Dosage form	Tablet
Recommended study	Two options: Biowaiver **or** Bioequivalence study. 1. BCS waiver option: The drug classified as BCS class I, for more information, please refer to "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: Type *of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Varenicline in plasma. *Bioequivalence based on (90% CI):* Varenicline.

Active ingredient	Vardenafil
Dosage form	Orally disintegrating tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Vardenafil in plasma. *Bioequivalence based on (90% CI):* Vardenafil. *Background:* The drug should be placed on the tongue where it will disintegrate. The drug should be administered without water.

Active ingredient	Vemurafenib
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Multiple-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Vemurafenib in plasma. *Bioequivalence based on (90% CI):* Vemurafenib.

Active ingredient	Venlafaxine Hydrochloride
Dosage form	Extended release Capsule
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions **And** Single-dose, two-treatment, replicate, crossover *in-vivo* under fed conditions. *Analytes to measure:* Venlafaxine and its metabolite O-desmethylvenlafaxine, in plasma. *Bioequivalence based on (90% CI):* Venlafaxine.

Active ingredient	Venlafaxine Hydrochloride
Dosage form	Extended release Tablet
Recommended study	2 studies *Type of Studies:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions **And** Single-dose, two-treatment, replicate, crossover *in-vivo* under fed conditions. *Analytes to measure:* Venlafaxine and its metabolite O-desmethylvenlafaxine, in plasma. *Bioequivalence based on (90% CI):* Venlafaxine.

Active ingredient	Venlafaxine Hydrochloride
Dosage form	Tablet
Recommended study	Two options: Biowaiver **or** bioequivalence study. *Type of Study:* 1. BCS waiver option: The drug classified as BCS class I, for more information, please refer to "The SFDA guideline for biowaiver". **Or** 2. Bioequivalence study: *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Venlafaxine and its metabolite O-desmethylvenlafaxine, in plasma. *Bioequivalence based on (90% CI):* Venlafaxine.

Active ingredient	Verdinafil
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Vardenafil in plasma. *Bioequivalence based on (90% CI):* Vardenafil.

Active ingredient	Vilazodone Hydrochloride
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fed conditions. *Analytes to measure:* Vilazodone in plasma. *Bioequivalence based on (90% CI):* Vilazodone. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Vismodegib
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Vismodegib (total) in plasma. *Bioequivalence based on (90% CI):* Vismodegib. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Voriconazole
Dosage form	Tablet
Recommended study	1 study *Type of Study:* single-dose, two-treatment, two-sequence, two-period, crossover *in-vivo* under fasting conditions. *Analytes to measure*: Voriconazole in plasma. *Bioequivalence based on (90% CI):* Voriconazole.

Active ingredient	Voriconazole
Dosage form	Suspension/ Oral
Recommended study	1 study *Type of Study:* single-dose, two-treatment, two-sequence, two-period, crossover *in-vivo* under fasting conditions. *Analytes to measure*: Voriconazole in plasma. *Bioequivalence based on (90% CI):* Voriconazole.

Active ingredient	Vortioxetine Hydrobromide
Dosage form	Tablet
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Vortioxetine in plasma. *Bioequivalence based on (90% CI):* Vortioxetine. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".

Active ingredient	Zolmitriptan
Dosage form	Orally Disintegrating Tablet
Recommended study	1 Study Type of Study: Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to Measure:* Zolmitriptan and its active metabolite, N-desmethylzolmitriptan, in plasma. *Bioequivalence based on (90% CI):* Zolmitriptan

Active ingredient	Zolmitriptan
Dosage form	Tablet
Recommended study	1 Study Type of Study: Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to Measure:* Zolmitriptan and its active metabolite, N-desmethylzolmitriptan, in plasma. *Bioequivalence based on (90% CI):* Zolmitriptan

Active ingredient	Zonisamide
Dosage form	Capsule
Recommended study	1 study *Type of Study:* Single-dose, two-treatment, two-period crossover *in-vivo* under fasting conditions. *Analytes to measure:* Zonisamide in serum. *Bioequivalence based on (90% CI):* Zonisamide. *Background:* AUC truncated at 72 h could be used and accepted according to "The GCC Guidelines for Bioequivalence".