

## **Draft Guidance on Tofacitinib Citrate**

This draft guidance, when finalized, will represent the current thinking of the Food and Drug Administration (FDA, or the Agency) on this topic. It does not establish any rights for any person and is not binding on FDA or the public. You can use an alternative approach if it satisfies the requirements of the applicable statutes and regulations. To discuss an alternative approach, contact the Office of Generic Drugs.

**Active Ingredient:** Tofacitinib citrate

**Dosage Form; Route:** Extended release tablet; oral

**Recommended Studies:** Two in vivo studies

1. Type of study: Fasting  
Design: Single-dose, two-way crossover in vivo  
Strength: Eq 11 mg base  
Subjects: Healthy males and nonpregnant females, general population.  
Additional comments: 1) Study protocol should incorporate appropriate screening and monitoring of subjects as per applicable recommendations from the reference listed drug's label; 2) Prospective study participants should be tested and confirmed negative for latent tuberculosis before enrolling in a bioequivalence study; 3) Enrolled study participants should have normal liver function tests, blood counts, and lipid profiles at baseline prior to study drug administration; 4) Female subjects should not be pregnant or lactating, and, if applicable, should practice abstinence or contraception during the study.
2. Type of study: Fed  
Design: Single-dose, two-way crossover in vivo  
Strength: Eq 11 mg base  
Subjects: Healthy males and nonpregnant females, general population.  
Additional comments: See comments above.

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**Analytes to measure (in appropriate biological fluid):** Tofacitinib in plasma

**Bioequivalence based on (90% CI):** Tofacitinib

**Waiver request of in-vivo testing:** Not applicable.

**Dissolution test method and sampling times:** The dissolution information for this drug product can be found on the FDA-Recommended Dissolution Methods web site, available to the public at the following location: <http://www.accessdata.fda.gov/scripts/cder/dissolution/>. Conduct comparative dissolution testing on 12 dosage units each of all strengths of the test and

reference products. Specifications will be determined upon review of the abbreviated new drug application (ANDA).

In addition to the method above, for modified release products, dissolution profiles on 12 dosage units each of test and reference products in at least three dissolution media (pH 1.2, 4.5 and 6.8 buffer) should be submitted in the application. Agitation speeds may have to be increased if appropriate. It is acceptable to add a small amount of surfactant, if necessary. Please include early sampling times of 1, 2.5, 4 and 6 hours and continue every 2 hours until at least 80% of the drug is released, to provide assurance against premature release of drug (dose dumping) from the formulation. Specifications will be determined upon review of the data submitted in the application.

Due to a concern of dose dumping of drug from this drug product when taken with alcohol, the Agency currently requests that additional dissolution testing be conducted using various concentrations of ethanol in the dissolution medium, as follows:

Testing Conditions: Volume: 900 mL 0.1 N HCl, apparatus 2 (Paddle, with Japanese sinkers) at 50 rpm, with and without the alcohol

Test 1: Twelve units tested according to the proposed method, with data collected every 15 minutes for a total of 2 hours

Test 2: Twelve units analyzed by substituting 5% (v/v) of test medium with Alcohol USP and data collection every 15 minutes for a total of 2 hours

Test 3: Twelve units analyzed by substituting 20% (v/v) of test medium with Alcohol USP and data collection every 15 minutes for a total of 2 hours

Test 4: Twelve units analyzed by substituting 40% (v/v) of test medium with Alcohol USP and data collection every 15 minutes for a total of 2 hours

Both test and RLD products must be tested accordingly and data must be provided on individual unit, means, range and %CV on all strengths.