



SPECIMEN COLLECTION AND HANDLING PROCEDURE FOR PLASMA 5-FLUOROURACIL (5-FU)

General Information:

Dihydropyrimidine dehydrogenase (DPD) is the major catabolic enzyme for fluoropyrimidines, including **5-fluorouracil (5-FU) and its prodrugs (Capecitabine and Tegafur)**. An increased plasma uracil level, which suggests DPD deficiency, could be used as a predictor to severe fluoropyrimidine-associated toxicity. (<https://www.ema.europa.eu/en/news/ema-recommendations-dpd-testing-prior-treatment-fluorouracil-capecitabine-tegafur-and-flucytosine>)

Plasma 5-fluorouracil (5-FU) is a send-out test to the Chemical Pathology Laboratory, Queen Mary Hospital (QMH CPD). (https://hkwc.home/webapps/Dept/CBIO/subpages/InformationForClinicalUsers_5FU.aspx)

Test Indications for Therapeutic Drug Monitoring of 5-FU:

1. Guidance for infusional 5-FU therapy in patients with DPD deficiency diagnosed by DPD phenotyping.
2. Suspected sub-therapeutic 5-FU exposure.
3. The test is NOT suitable for monitoring of prodrugs of 5-FU (e.g. Capecitabine, Tegafur)

Patient Preparations:

1. Patient should avoid chocolate and caffeine-containing food and beverage (tea/coffee/energy drinks) 8 hours before specimen collection.
2. Patient should NOT be taking theophylline which can interfere with the assay.

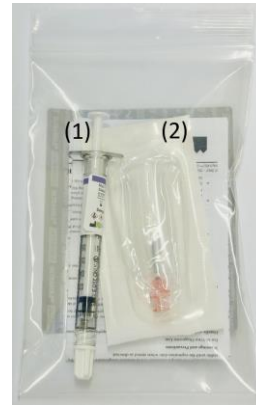
Precautions & Timing of Specimen Collection:

1. Draw sample from a peripheral port or venous draw only.
2. Avoid drawing from administration line to prevent exogenous 5-FU contamination and false elevation.
3. Specimen should be **collected at around 9 am (at least 18 hours after the start of the infusion)**.
4. Collect samples **2 to 4 hours before infusion completion**, ensuring the pump contains solution during sampling at a constant rate for steady-state 5-FU levels.
5. Inject 0.1 mL sample stabilizer from the prefilled syringe into the collection tube immediately after blood draw. Otherwise, falsely low results may be obtained.



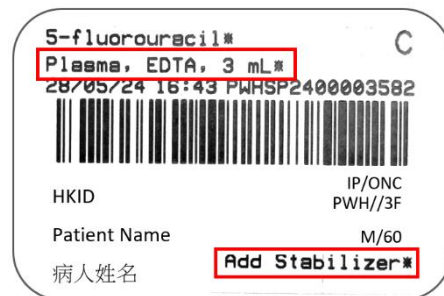
Instructions for Clinicians (for NTEC Oncologists only):

1. Request the Plasma 5-fluorouracil (5-FU) test via GCRS (CMS).
2. Input the Chemotherapy protocol and Infusion duration (hours).
3. Collect the **5-Fluorouracil Stabilizer Pack (STB) test kit** obtainable from Specimen Reception, 3/F, Rapid Response Laboratory, Main Clinical Block, PWH (Tel: 3505 2363).



(NOTE: STB consists of (1) a stabilizer syringe and (2) a BD Vacutainer Blood Transfer Device.)

4. Affix GCRS label to blood tube. Collect 3 mL blood into an EDTA blood tube. (NOTE: Minimum blood volume: 2 mL)

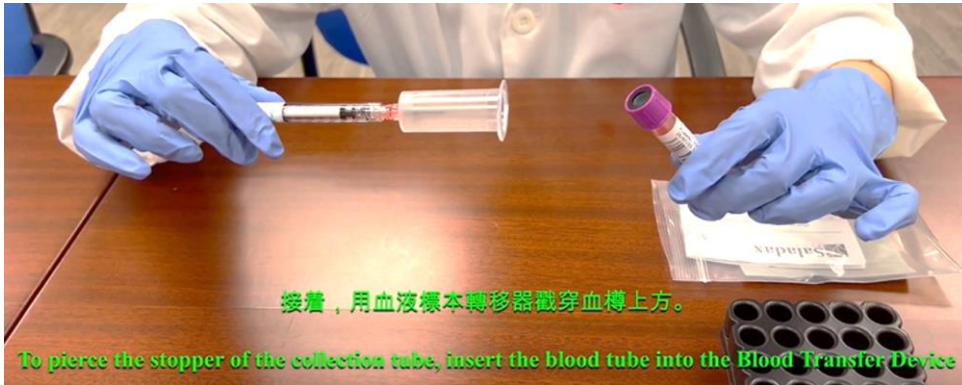


5. Check the expiry date of the STB pack, then open the package.
6. Uncap the stabilizer syringe (do NOT discard the white cap).
7. Attach the stabilizer syringe to the Blood Transfer Device.





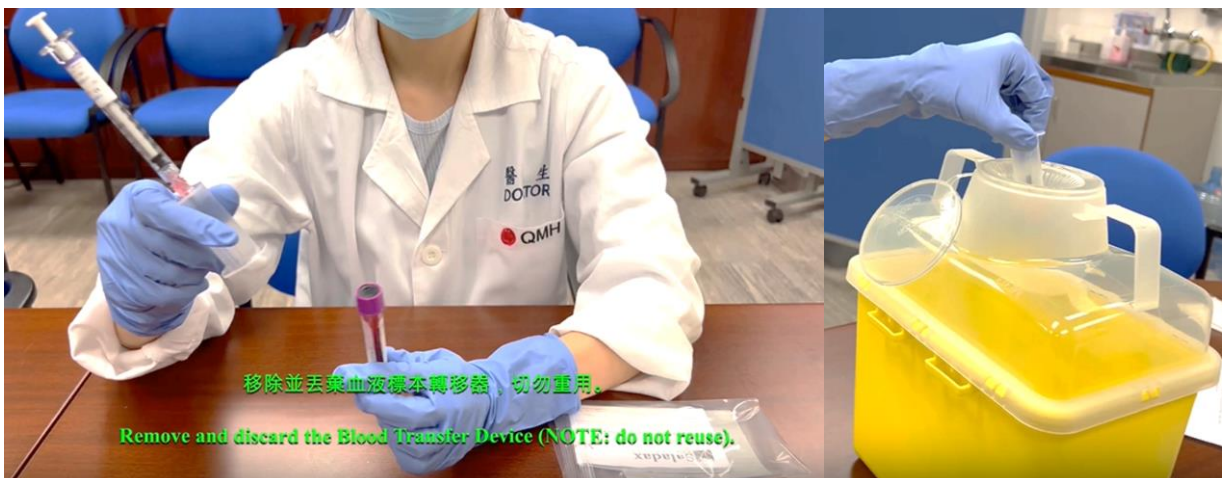
8. To pierce the stopper of the collection tube, insert the blood tube into the Blood Transfer Device.



9. Depress the plunger completely to inject 0.1 mL sample stabilizer into the specimen immediately after blood draw.



10. Remove and discard the Blood Transfer Device into a sharps box (NOTE: do not reuse).





11. Recap the emptied stabilizer syringe.



12. Mix well the blood sample with the stabilizer by gently inverting the blood tube for 3 times.



13. Send the **labelled blood specimen together with the recapped emptied syringe in a plastic bag** to the laboratory at **room temperature** within 24 hours of collection.

(NOTE: do NOT send on ice or refrigerate the specimen as this can affect the result.)

