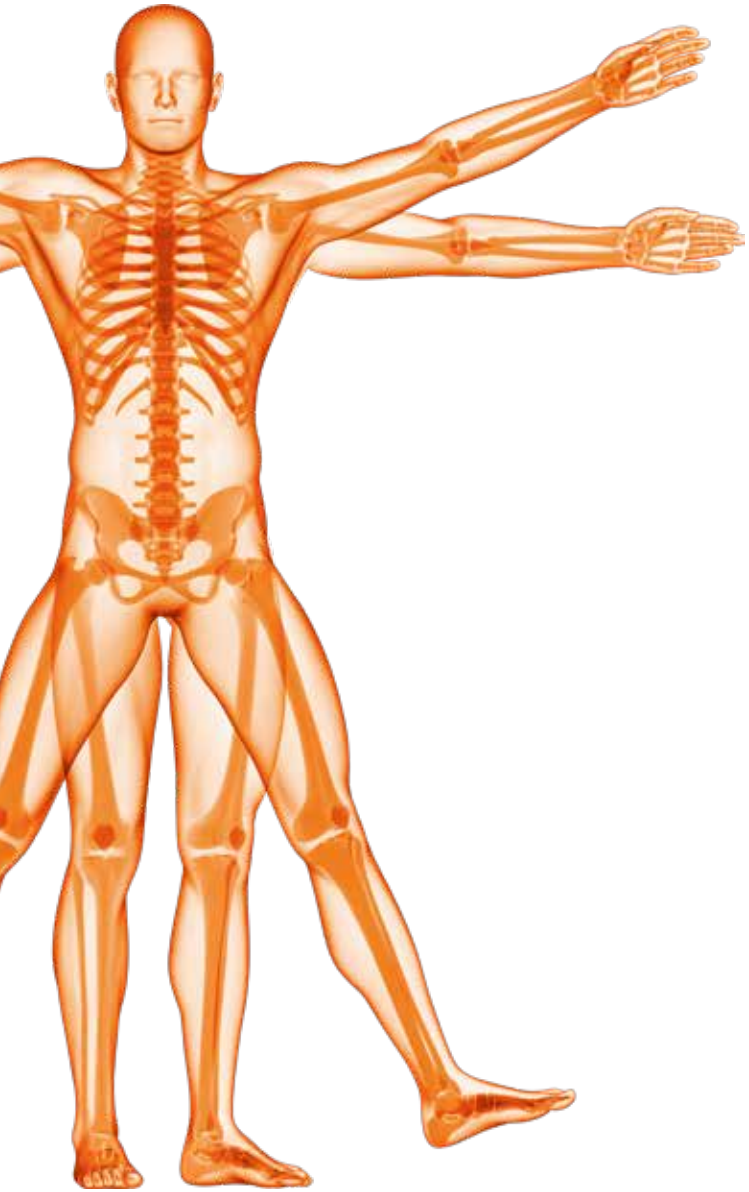

www.aruplab.com/topics/imatinib

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keyword: IMATINIB

A nonprofit enterprise of the University of Utah and its Department of Pathology

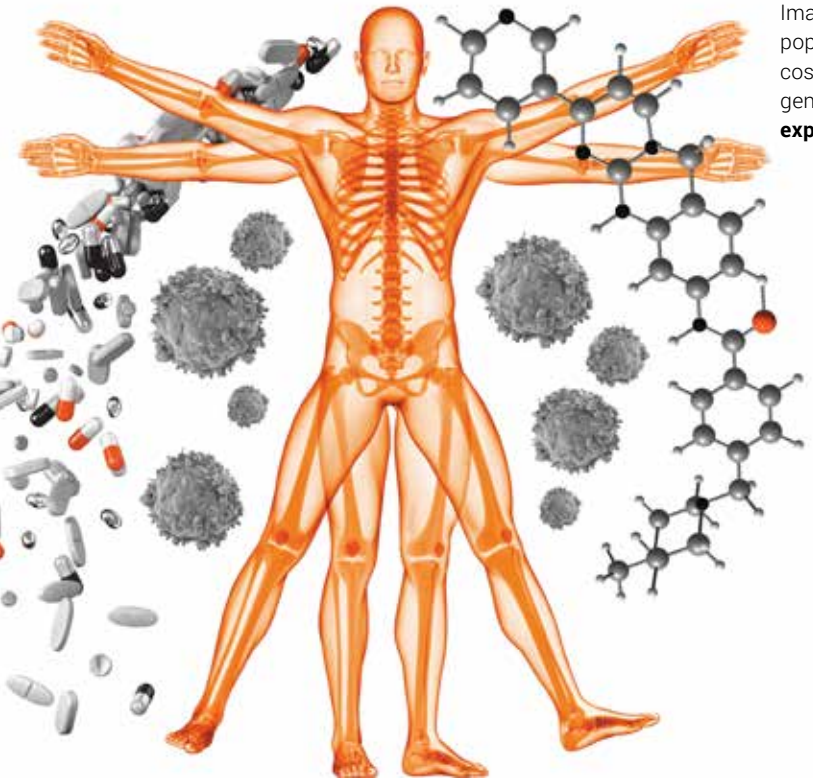
BD-CS-062, Rev 0, May 2018

Imatinib—Therapeutic Drug Monitoring (TDM)

testing at ARUP Laboratories

ARUP LABORATORIES

ARUP now offers a **therapeutic drug monitoring** (TDM) test for chronic myelogenous leukemia **(CML)** and gastrointestinal stromal tumor **(GIST)** patients being treated with the tyrosine kinase inhibitor **(TKI)** imatinib.



Reasons For Ordering This Test

1. Identify non-adherence
2. Optimize dose
3. Investigate cause of therapeutic failure
4. Identify possible drug-to-drug interactions when changes to drug therapy are made
5. Evaluate plasma concentrations when switching from one formulation to another (e.g., brand name versus generic)

Why Is This Testing Important?

Imatinib is a first-line treatment for CML and GIST and is most effective when trough levels (Cmin) are maintained above a predetermined therapeutic level.[1,2]

- CML: 1000 ng/mL target[1]
- GIST: 1100 ng/mL target[2]

Imatinib, when dosed according to TDM, yields similar MMR as second generation TKIs.[3]

Cost Savings

Imatinib TDM helps you meet goals of improving population health, patient treatment, and reducing the cost of treating CML and GIST. With the introduction of generic imatinib for the treatment of CML, the **price is expected to drop**.[4]

Clinical Trials Support the Use of TDM For Imatinib Treatment of CML

OPTIM Imatinib Study[3] (133 CML Patients)

- Two-thirds (2/3) of patients did not have optimal imatinib exposure and would benefit from individualized TDM
- Major molecular response (MMR) at 12 months was achieved in 63 percent of patients in arm 1 dosed by TDM, compared to 37 percent of patients in arm 2 (no TDM; p=0.031)

TOPS Imatinib Trial[5] (476 CML patients)

- Imatinib trough levels >1165 ng/mL were associated with a faster time to MMR (p=0.0304)
- Trough levels above 3180 ng/mL were associated with a higher frequency of all grade neutropenia, anemia, and leukopenia. but not thrombocytopenia

Laboratory Testing at ARUP

test code	test name
3000539	**Imatinib**

- Ordering Recommendation: Optimize drug therapy and monitor patient adherence.
- Fast turnaround time (1–5 days).

TDM Can Improve Dose Optimization

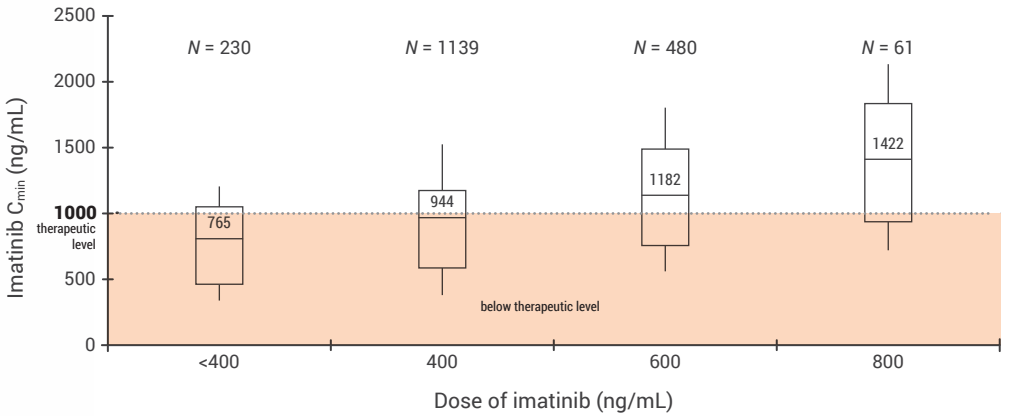


Figure 1. In a study of 1,910 CML samples, imatinib trough plasma concentration levels are shown according to total daily dose. At each dose, mean concentrations are stated and indicated by a horizontal line. The top and bottom of each box represent the 25th and 75th percentiles, and vertical lines indicate the standard deviation. The dotted line corresponds to the imatinib C_{min} threshold (1002 ng/mL).[6]

For additional information, visit: **www.aruplab.com/topics/imatinib**