

**VARIABILITY IN DRUG EFFICACY AND SAFETY IS A LEADING CHALLENGE IN CHEMOTHERAPEUTICS**

Substantial variation exists in oncology treatment in a given population, resulting in unpredictable responses and potentially deadly adverse events (AEs). Chemotherapeutic AEs often are much more severe than in other therapeutics.<sup>1</sup> Adding to the complexity of cancer therapeutic evaluation are the contributions to drug efficacy and safety from both acquired (somatic) and inherited (germline) variations.

**HELP PREDICT A PATIENT'S MEDICAL AND PHARMACEUTICAL RESPONSE**

Germline pharmacogenomics is an important tool in helping understand how patients metabolize medications based on their DNA. It can help clinicians:



**EVALUATE** associations between drug efficacy, toxicity, and variation in drug-metabolizing enzymes, and transporters<sup>2</sup>






**OPTIMIZE** individual-specific treatment efficacy, and administer the appropriate chemotherapy agent at the right dosage while minimizing adverse events<sup>1</sup>


**OUR PANEL ANALYZES THE GENES AND ALLELES MOST RELEVANT TO ONCOLOGY—INCLUDING GERMLINE VARIANTS—AND EXCEEDS FDA RECOMMENDATIONS**

Genes Tested	Alleles	Category of Medication	Indication	Common Cancer and Other Disorders
DPYD <sup>3,5</sup>	*1, *2A, rs115232898 G, *9A, rs67376798 A, *13	Fluoropyrimidines	Capecitabine, Fluorouracil, Tegafur	Gastrointestinal, Skin Cancer, and Head and Neck Cancers
TPMT <sup>3,6</sup>	*1, *2, *3A, *3B, *3C, *4	Thiopurines	Azathioprine, Mercaptopurine, and Thioguanine	Leukemia, Autoimmune disorders
UGT1A1 <sup>3,7,9</sup>	*1, *6, *27, *28	Topoisomerase Inhibitors/ Histone Deacetylase Inhibitors/other	Irinotecan, Nilotinib, Pazopanib, Belinostat	Gastrointestinal, Leukemia, Lymphoma, Renal Cancer, Sarcoma
CYP2C8 <sup>10</sup>	*1A, *2, *3, *4	Taxanes	Paclitaxel	Breast, Esophageal, Lung, and Cervical
MTHFR <sup>11</sup>	1298A>C, 677C>T	Antifolates	Methotrexate	Brain, Leukemia, Lymphoma, Lung, Osteosarcoma, Autoimmune disorders including arthritis and psoriasis

Using a patient's DNA sample and list of current medications, our oncology pharmacogenomics test report indicates guidance levels based on a patient's genotype

	Medication has potentially reduced efficacy or increased toxicity, or the patient has an increased risk for the indicated condition
	Guidelines exist for adjusting dosage or increased vigilance, or the patient has a moderate risk for the indicated condition
	Medication can be prescribed according to standard regimens, or the patient's risk for the indicated condition is not increased

### ONCOLOGY PHARMACOGENOMICS TESTING PROCESS

THE PROCESS	The DNA collection procedure is simple and requires only an in-office buccal (cheek) swab with our sample collection kit. UPS will pick up your patient samples and deliver them directly to our lab (labels and instructions are included in each kit). Dedicated account services are always available to answer questions and manage requests.
THE TURNAROUND TIME	7 to 10 days
THE REPORT	Upon completion of DNA extraction and evaluation at our advanced laboratory facility, a comprehensive report is generated and uploaded to a secure portal with dedicated physician log-in and downloading capabilities. Physician-to-physician consultation is also available with our Medical Director or our Genetic Counselor. Monograph is available upon request.

**Talk to your representative or visit our web site for our full catalog of genetic testing solutions.**

**Personalized Genetic Medicine // Inherited Genetic Disorders // Women's Genetic Health**

### ABOUT PREMIER GENOMICS

Premier Genomics is committed to advancing the field of personalized genetic medicine by offering cutting-edge genetic screening services to help practitioners and their patients in pursuit of tailored treatment and optimized, personalized health care. We work together with patients and their insurance providers to help ensure that access to these important genetic tests does not cause patients financial hardship.



**Premier Genomics | [www.PremierGx.com](http://www.PremierGx.com) | [dnatest@premiergx.com](mailto:dnatest@premiergx.com)**

250 Ed English Drive, Building 3, Unit D, Shenandoah, TX 77385

CLIA-accredited, CAP-certified clinical laboratory

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