

DNA-Guided Breast Cancer Management with the *TAMOXIFEN HILOmet System*

Epidemiological Studies Indicate that Genomically-Testable Drug Metabolism Deficiencies Reduce the Benefit of Tamoxifen

Tamoxifen (*Nolvadex*[®]) is widely prescribed for adjunctive therapy of estrogen receptor positive (*ER+*) breast carcinoma. Tamoxifen functions as an anti-estrogen. A pro-drug, Tamoxifen requires first, for therapeutic effect, its activation to the functional metabolite endoxifen. Endoxifen is the most potent Tamoxifen metabolite. The cytochrome P450 (*CYP450*) *CYP2D6* isoenzyme is required for Tamoxifen metabolism and endoxifen synthesis.

Common DNA polymorphisms in the *CYP2D6* gene can reduce isoenzyme activity and decrease Tamoxifen conversion to endoxifen. *CYP2D6* variants result in increased frequency of disease recurrence and decreased 5-year survival rates. The *TAMOXIFEN HILOmet System* is revolutionary for clinical practice. By means of DNA Typing, the innate Tamoxifen metabolic capacity of the patient can be predicted and diagnosed simply from a blood sample.

DNA-Guided Tamoxifen Therapy

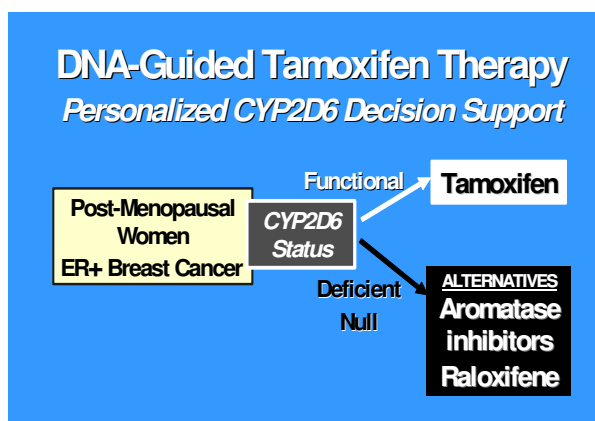
Patients with certain *CYP2D6* polymorphisms have decreased endoxifen levels and are prone to breast cancer recurrence and mortality. *CYP2D6* DNA Typing can identify patients with these drug metabolism deficiencies, allowing consideration of alternative therapies, including aromatase inhibitors and Selective Estrogen Receptor Modulators (*SERMs*), such as raloxifene. Selective Serotonin Reuptake Inhibitors (*SSRIs*), such as fluoxetine (*Prozac*[®]) and paroxetine (*Paxil*[®]), are frequently co-prescribed for “hot flashes” and vasomotor instability. These *SSRIs* are functional inhibitors of *CYP2D6* and decrease Tamoxifen conversion, which is undesirable in patients already deficient in drug metabolism.

Technical Information

The *TAMOXIFEN HILOmet System* determines an individual's innate Tamoxifen metabolic capacity by DNA Typing simultaneously the *CYP2D6* gene for 15 variants. The report to the physician includes DNA Typing results and recommended Tamoxifen management based on published guidelines.

Ordering the DNA Test for Tamoxifen

Order forms are available at www.genomas.net/LPH. The *TAMOXIFEN HILOmet System* is available through Clinical Laboratory Partners (CLP), test code 7002. A listing of CLP Patient Service Centers can be found at www.clpct.com or 800-286-9800.



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HILOmet DNA Typing is performed at the Genomas Laboratory of Personalized Health (LPH), located at Hartford Hospital. CT Dept. of Public Health license # *CL-0644*. Centers for Medicare and Medicaid Services certification # *07D1036625*.

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