Ask the Expert: PGx Copy Number Detection and Its Challenges

Dr. Houda Hachad is an entrepreneurial scientist with deep experience in pharmacology and pharmacogenetics. At the University of Washington, she co-developed a drug interaction database and a pharmacogenetics database. Today, she is Chief Scientific Officer at Translational Software where her team creates easy-to-use PGx reports for physicians. Agena recently sat down with Dr. Hachad to discuss the challenges of CYP2D6 copy number detection.

> *"Bottom line, if you are detecting CNV by looking only at a specific region, you are likely missing hybrid alleles."*
>
> *– Houda Hachad*

Houda Hachad
Pharm.D, M.Res

Chief Scientific Officer,
Translational Software

Q **Why is CYP2D6 copy number detection so important to PGx testing?**

A CYP2D6 influences the metabolism of around 25% of all commonly used medications, so accurately characterizing it is critical. While characterization of the alleles based on SNPs and INDELs is important, it is incomplete without an understanding of the gene copy number. Without proper characterization of copy number, you cannot properly determine the various phenotypes.

Q **What are CYP2D6 hybrid alleles and how do they affect copy number detection?**

A CYP2D6 hybrid alleles are structural variations that change the functionality of the enzyme. These alleles are fairly common. It is essential to distinguish between hybrids and other CYP2D6 alleles to accurately characterize a sample's metabolizer status. Unfortunately, depending on the technology being used, that can be difficult to do.

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Q **Why are CYP2D6 hybrid alleles difficult to detect?**

A Most PGx copy number detection methods cannot detect hybrid alleles. They only look at one, two or maybe three regions on the gene. That is not enough.

You need a technology that looks broadly across the gene to catch these structural changes. The VeriDose™ CYP2D6 CNV panel from Agena is a great example of a technology that is well-suited for hybrid allele detection. The single panel interrogates 22 points along the gene to identify hybrid alleles and provide accurate copy number calling.

Q **How can PGx labs translate diplotype information into something that is more easily understood?**

A Translational Software has developed a package solution for PGx labs to not only translate diplotypes into phenotypes, but also to take variant level calls and CNV values and translate them into diplotypes. Translational then uses established diplotype to phenotype relationships published by expert groups such as CPIC to ultimately inform therapeutic strategies.

Q **How can readers learn more about the technologies you've just mentioned?**

A The VeriDose CYP2D6 CNV panel is available through Agena Bioscience. They have detailed panel specifications and instruction on how to contact them with questions on their website at www.agenabio.com

Translational Software partners with laboratories to deliver clinically relevant reports that are easy for physicians to use. Our solution not only enables laboratories to deliver relevant clinician guidance, but also delivers efficiencies in cost and reduced time to market. There are details on how to schedule a demo with a relevant PGx expert at www.translationalsoftware.com

Visit **agenabio.com** and **translationalsoftware.com** to learn more.

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