A close-up of a logo

Description automatically generated

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| **Collection Date** | March 22nd, 2024 |
| **Patient Name** |  |
| **Patient ID** |  |
| **Birth Date** |  |
| **Gender** |  |
| **Age** |  |

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| Analyte | Result |
| CYP2C19\*2 | Positive |

**Results**

**Interpretation**

The presence of the CYP2C19\*2 mutation can have significant implications for the metabolism of certain drugs, particularly some antidepressants. This mutation is associated with reduced activity of the CYP2C19 enzyme, which can lead to altered drug metabolism and efficacy.

Antidepressants Affected by CYP2C19\*2 Mutation:

* **Citalopram (Celexa)**: Individuals with the CYP2C19\*2 mutation may have higher plasma levels of citalopram, potentially increasing the risk of side effects.
* **Escitalopram (Lexapro)**: Similar to citalopram, the metabolism of escitalopram can be affected, leading to higher concentrations and an increased risk of side effects.
* **Sertraline (Zoloft)**: While sertraline is primarily metabolized by CYP2B6, CYP2C19 also plays a role. The impact of the mutation on sertraline metabolism is less pronounced but may still be clinically relevant in some individuals.

Side Effects to consider:

* Due to higher drug concentrations, individuals with the CYP2C19\*2 mutation may experience more pronounced side effects, such as nausea, dizziness, sleep disturbances, and cardiac effects.
* In some cases, the mutation may lead to reduced formation of active metabolites, potentially diminishing the therapeutic efficacy of certain drugs.

**Detection Method**

The CYP2C192 allele was identified using the GeneDetek device. This biosensor employs gold electrodes functionalized with a thiolated self-assembled monolayer (SAM) of 6-Mercapto-1-hexanol (MCH) and hairpin-probes that complement the CYP2C192 allele. Upon encountering the target analyte, this probe undergoes a structural change, forming a duplex. To enable the detection of this reaction, a solution containing streptavidin protein complexed with horseradish peroxidases (Streptavidin -HRP) and 3,3’,5,5’ tetramethylbenzidine (TMB) is applied, facilitating the measurement of the resultant signal through a redox reaction.