

# Discovery of selective first-in-class hit and lead compound targeting novel anti-cancer target SLC1A5\_var against malignant tumor

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| <b>Disease area</b>            | <b>Malignant Tumor</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Product Type</b>            | Small Molecule Chemical                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Indication</b>              | Solid Tumor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Target</b>                  | Mitochondrial Glutamine Transporter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Mechanism of Action</b>     | <ul style="list-style-type: none"> <li>- Disruption of trimer formation of mitochondrial glutamine transporter, inhibiting glutaminolysis</li> <li>- Decreased uptake of glutamine into the mitochondria will selectively kill cancer cells and unaffected normal cells</li> <li>- Decreased main nutrient for cancer cell survival leads to selective metabolic crisis to the cancer cells, but not to the normal cell</li> </ul>                                                                                 |
| <b>Competitiveness</b>         | <ul style="list-style-type: none"> <li>- As the target is novel and first-in-class there are no competitors</li> <li>- Cellular Membrane Glutamine Transporter inhibitors are potential competitors, but most discovered cellular membrane glutamine transporters are glutamine analogs or less effective due to other cellular membrane glutamine transporters</li> <li>- Cellular Membrane Glutamine Transporter inhibitors are also toxic as they inhibit the global glutamine utilization of a cell</li> </ul> |
| <b>Development Stage</b>       | <b>Hit</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Route of Administration</b> | Oral                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

**A. Discovery of Mitochondrial Glutamine Transporter**

**B. A Transcript Variant of SLC1A5 is localized in the mitochondria**

**D. Mitochondrial Glutamine Transporter is the Major Mediator of Glutaminolysis in Cancer Cells**

**C. SLC1A5\_var is a major transporter of glutamine**

**E. Mitochondrial Glutamine Transporter is Responsible of the Cancer Metabolic Reprogramming**

**F. Genetic Inhibition of Mitochondrial Glutamine Transporter induces Cancer Death**

**G. TCGA Patient Data reveals that Mitochondrial Glutamine Transporter is overly expressed in Cancer Patients**

**Key Data**