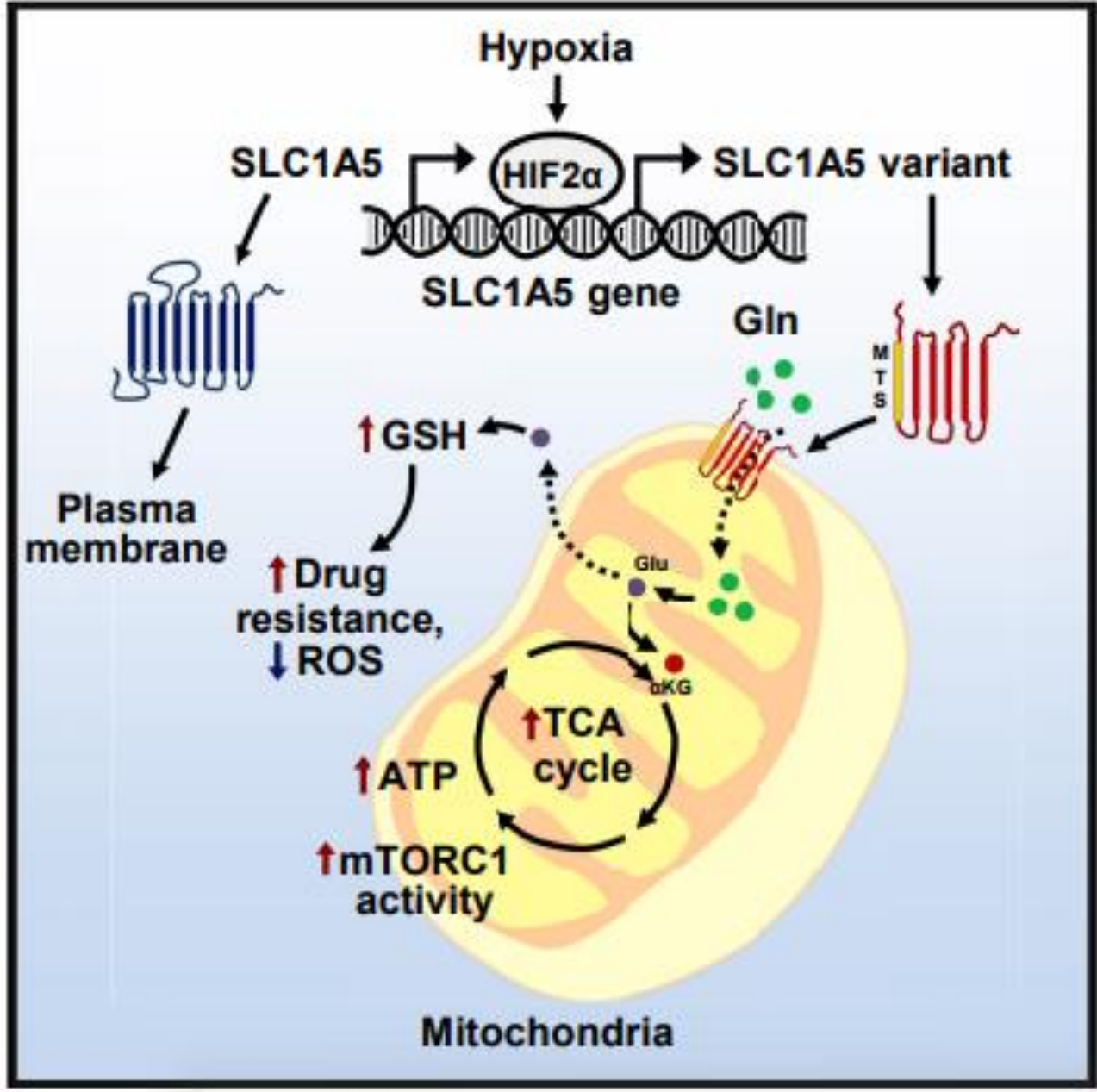


Discovery of selective first-in-class hit and lead compound targeting novel anti-cancer target SLC1A5\_var against malignant tumor

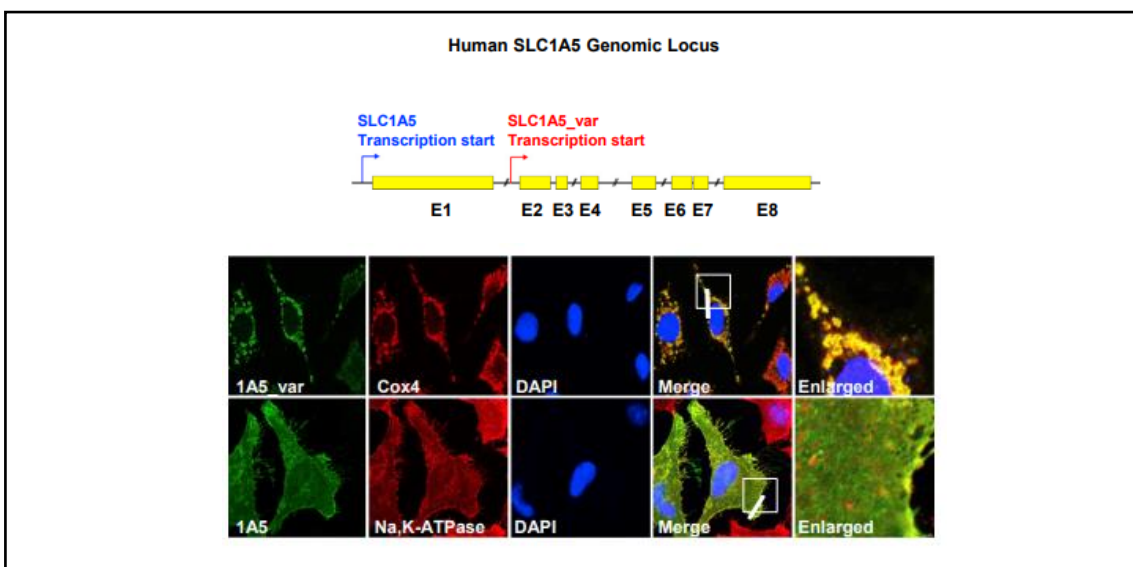
Yonsei University, College of Pharmacy

Disease area	Malignant Tumor
Product Type	Small Molecule Chemical
Indication	Solid Tumor
Target	Mitochondrial Glutamine Transporter
Mechanism of Action	<div><div>-</div><div>Disruption of trimer formation of mitochondrial glutamine transporter, inhibiting glutaminolysis</div><div>-</div><div>Decreased uptake of glutamine into the mitochondria will selectively kill cancer cells and unaffected normal cells</div><div>-</div><div>Decreased main nutrient for cancer cell survival leads to selective metabolic crisis to the cancer cells, but not to the normal cell</div></div>
Competitiveness	<div><div>-</div><div>As the target is novel and first-in-class there are no competitors</div><div>-</div><div>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</div><div>-</div><div>Cellular Membrane Glutamine Transporter inhibitors are also toxic as they inhibit the global glutamine utilization of a cell</div></div>
Development Stage	Hit
Route of Administration	Oral

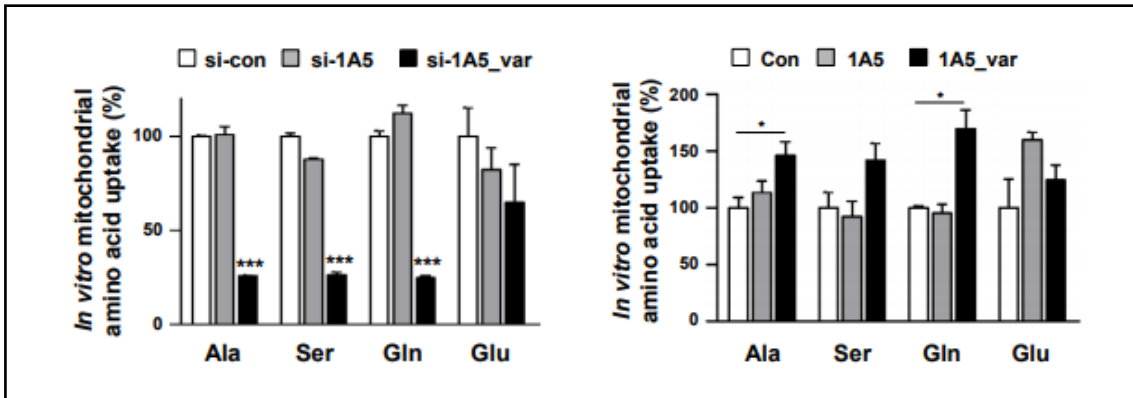
A. Discovery of Mitochondrial Glutamine Transporter



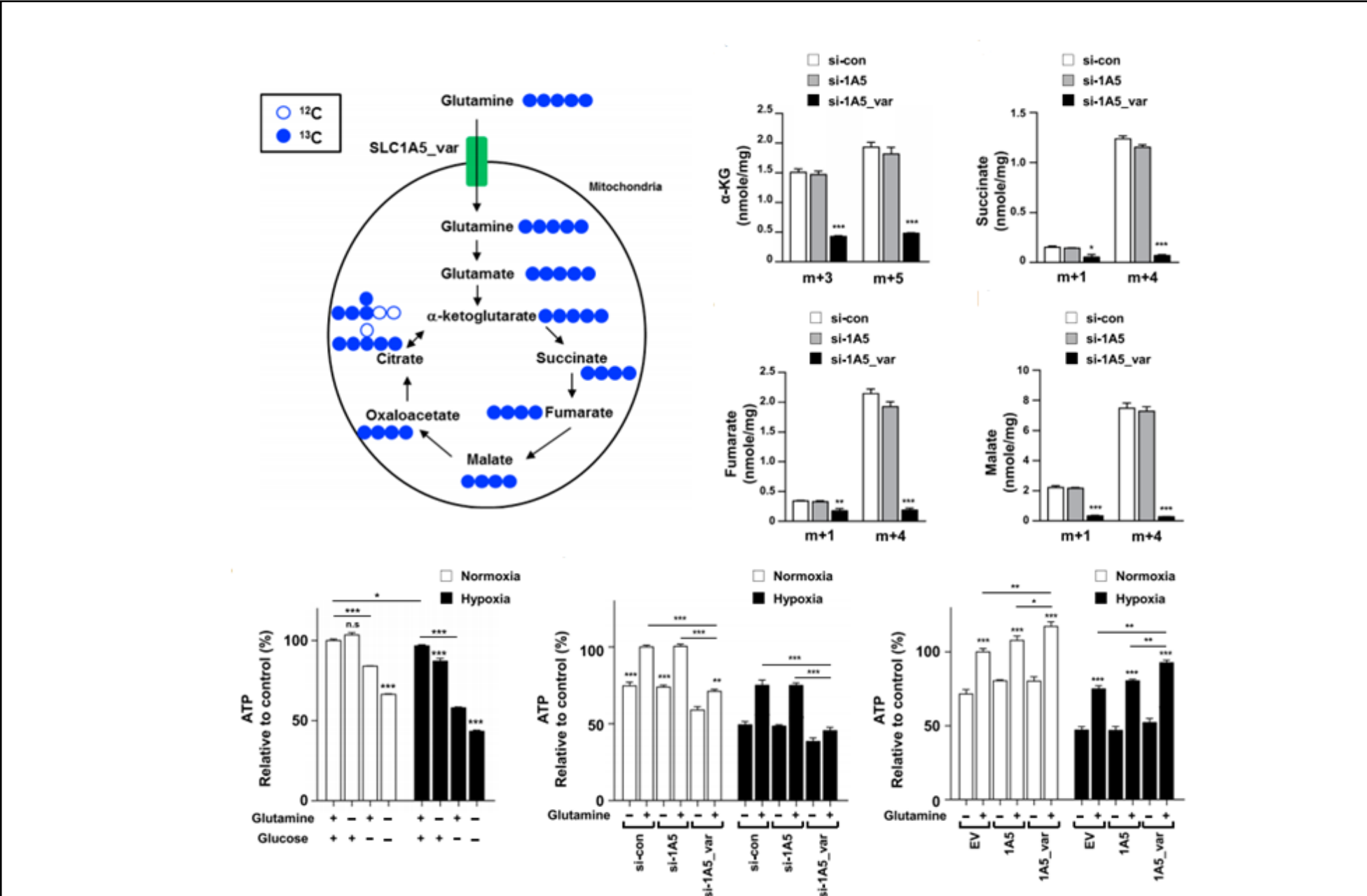
B. A Transcript Variant of SLC1A5 is localized in the mitochondria



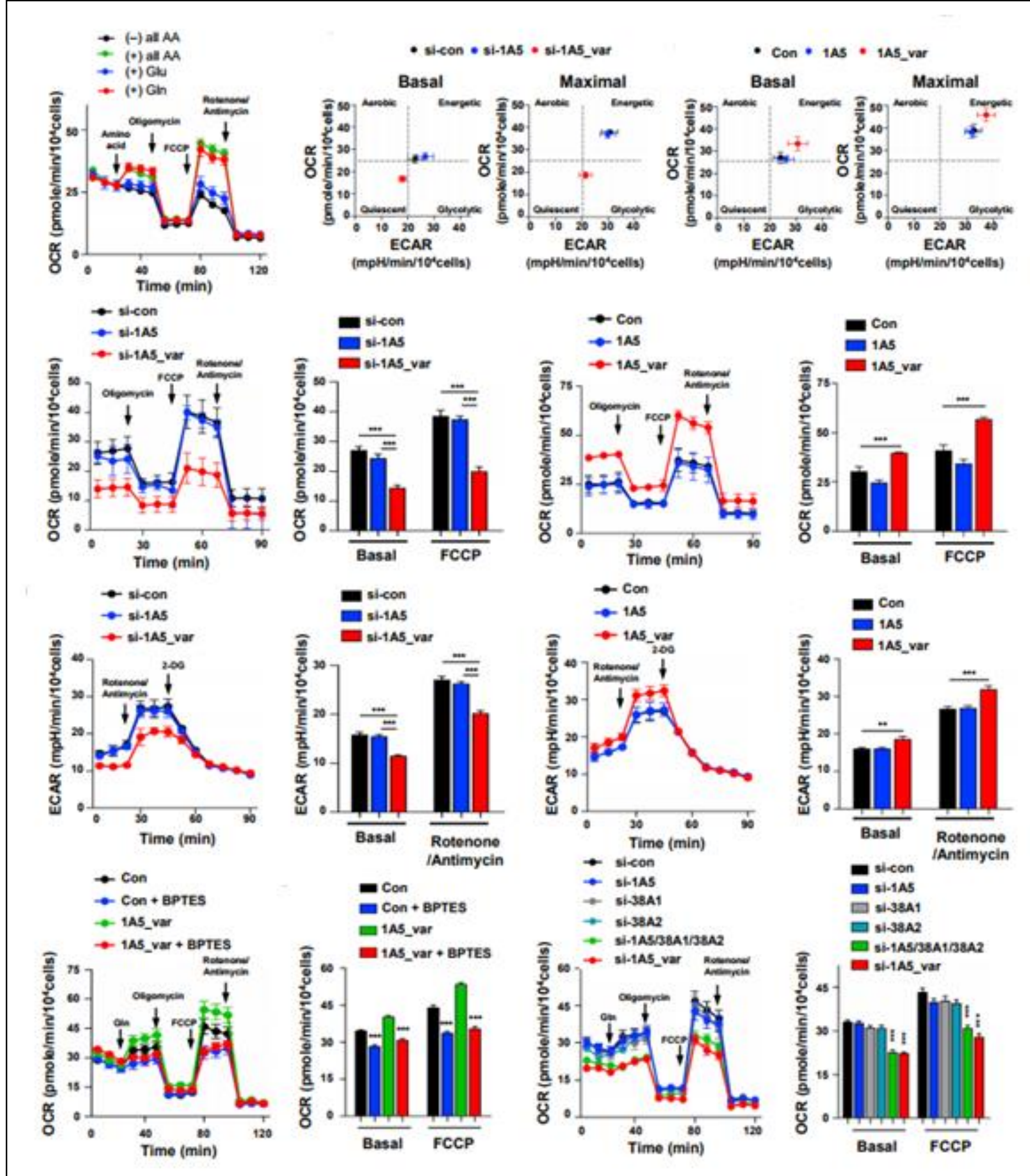
C. SLC1A5\_var is a major transporter of glutamine



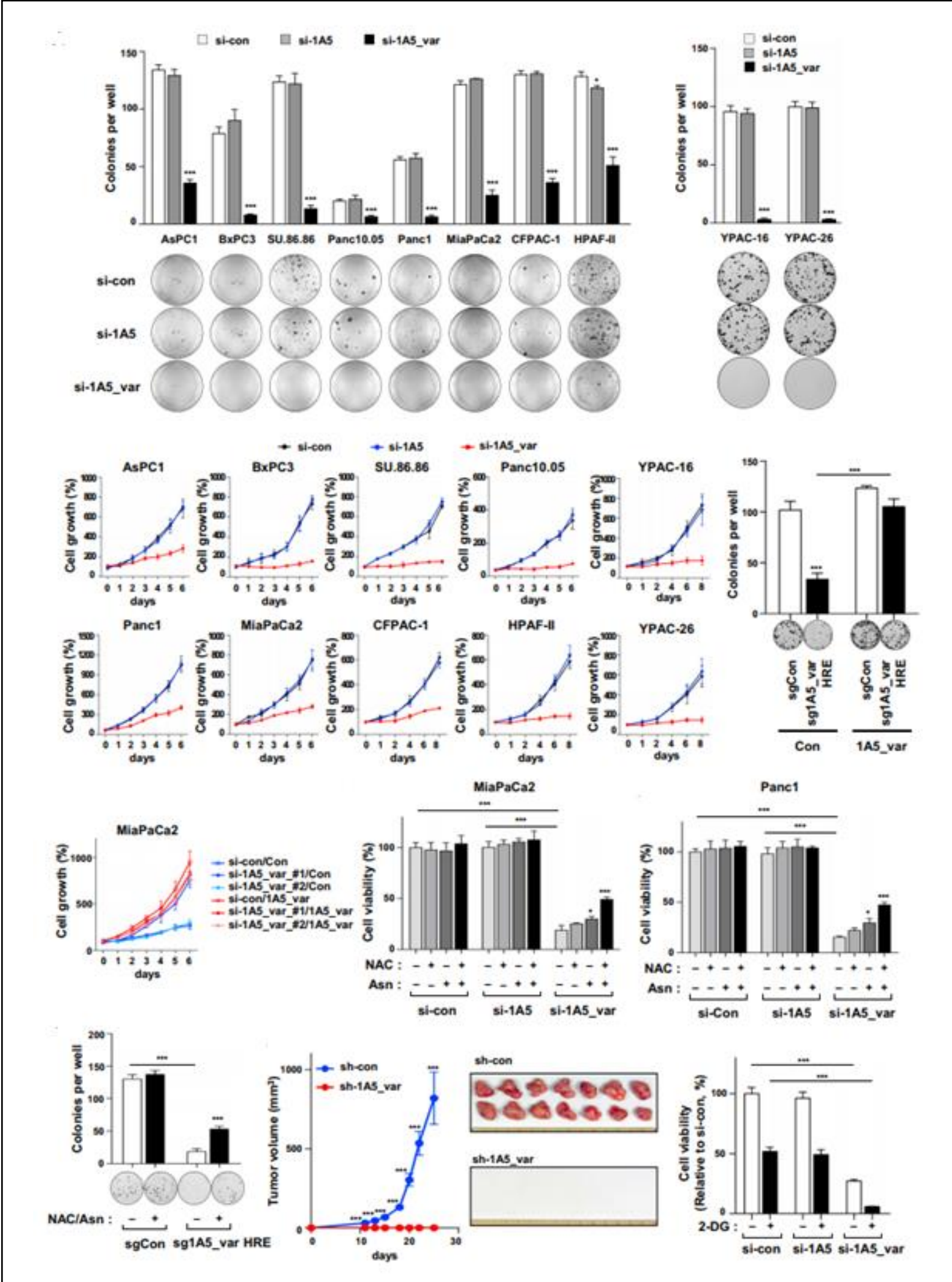
D. Mitochondrial Glutamine Transporter is the Major Mediator of Glutaminolysis in Cancer Cells



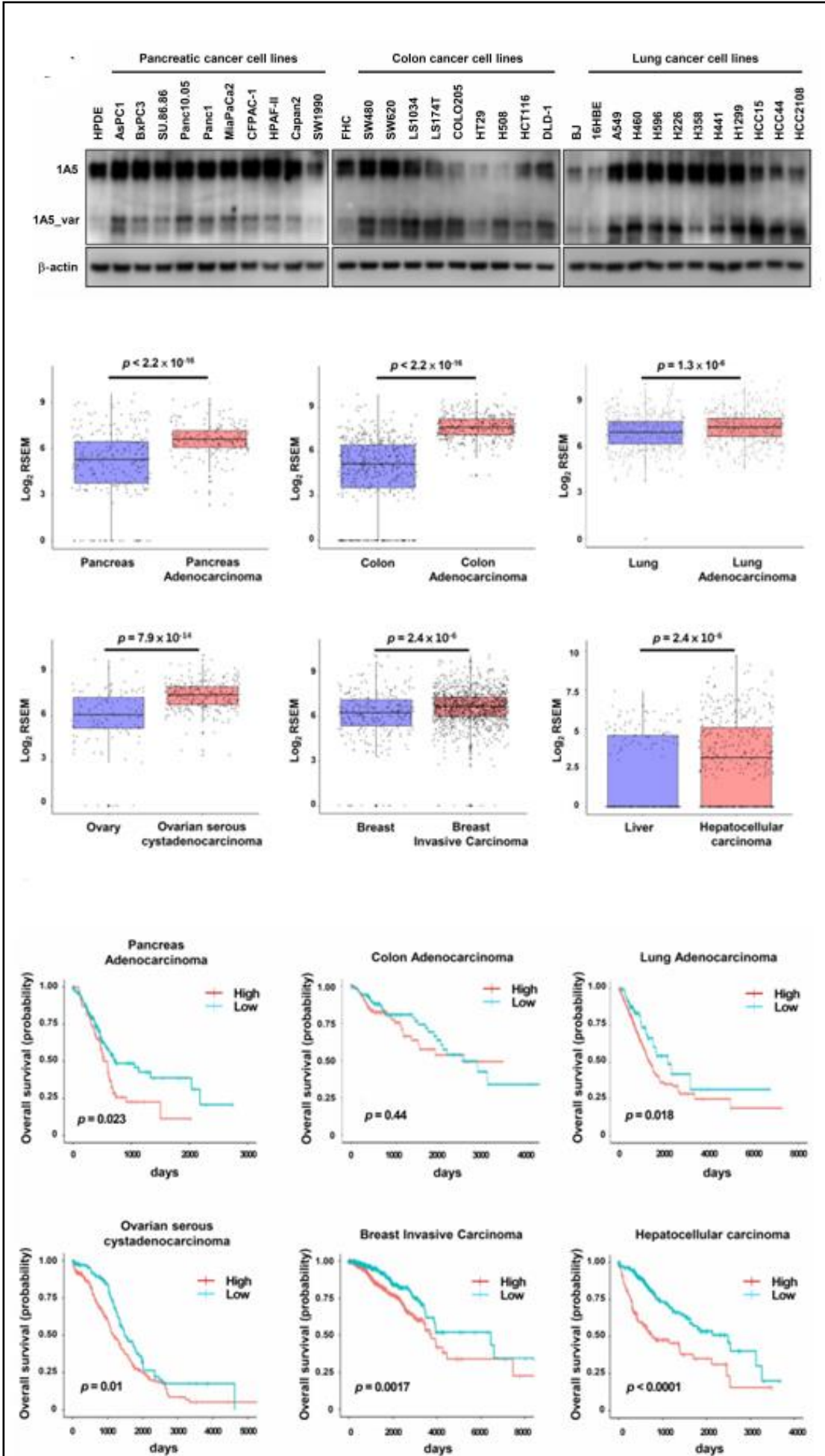
E. Mitochondrial Glutamine Transporter is Responsible of the Cancer Metabolic Reprogramming



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