Product Data Sheet

METAscreen® SLC Profiling Kit

Get a new vision of cell metabolism

Establish a meaningful cell surface metabolic signature based on glucose, amino acids, phosphate and other nutrient transporters expression, or simply explore and screen SLC expression on your cells

Visit our website to download the detailed protocol to use this kit and quantify all these SLCs at the surface of your cells, in one experiment. Workflow is designed for 96-well plates, but can be adapted to labeling in FACS tubes.

If you wish you can use these reagents one at a time, as you do with regular antibodies.

Identity Card

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>SLC-25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>25 tests for each RBD</td>
</tr>
<tr>
<td>Isotype</td>
<td>Mouse IgG1 and Rabbit IgG1 Fc fusion</td>
</tr>
<tr>
<td>Transporters</td>
<td>GLUT1 (SLC2A1) + ASCT2 (SLC1A5) + PiT1 (SLC20A1) + PiT2 (SLC20A2) + XPR1 + FLVCR1 (SLC49A1)</td>
</tr>
<tr>
<td>Reactivity</td>
<td>All RBDs react with human transporters</td>
</tr>
<tr>
<td>Preparation</td>
<td>The RBDs were purified by affinity chromatography</td>
</tr>
<tr>
<td>Formulation</td>
<td>Phosphate-buffered solution, pH 7.4, containing 0.09% sodium azide and 20% glycerol</td>
</tr>
<tr>
<td>Storage</td>
<td>The RBD solution should be stored undiluted at -20°C</td>
</tr>
</tbody>
</table>

Applications

Applications: Flow cytometry / Immunofluorescence

Recommended Usage: Each lot of RBD is quality control tested by flow cytometry. For flow cytometry applications, the suggested use of this reagent is 1 to 5 μL for 10^5 cells in 100 μl volume (10^6 cells.mL^-1). It is recommended that the reagent be titrated for optimal performance for each application. Detailed protocols can be downloaded from our website.

Refer to the Product Data Sheet coming with your kit for the recommended volumes for each RBD lot included in your kit.

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RBDs included

- **GLUT1** (solute carrier family 2, facilitated glucose transporter member 1 -SLC2A1-) is the major glucose transporter. It is expressed on most cell types, being a key player of basal glucose metabolism, and as such can be dysregulated by conditions triggering, or requiring, energetic modulations such as glucose starvation, oxphos vs. glycolysis switches, malignancies etc.

- **ASCT2** (solute carrier family 1, facilitated neutral amino acids transporter member 5 –SLC1A5-) transports neutral amino acids, especially glutamine. It is differentially expressed, and plays a pivotal role in cell growth, autophagy and differentiation.

- **PiT1** (solute carrier family 20, facilitated phosphate transporter member 1 -SLC20A1-) is a sodium-phosphate symporter that absorbs phosphate from interstitial fluid for use in cellular functions such as metabolism, signal transduction, and nucleic acid and lipid synthesis. Its expression is regulated to respond to cell metabolism needs.

- **PiT2** (solute carrier family 20, facilitated phosphate transporter member 2 -SLC20A2-) is a type 3 sodium-dependent phosphate symporter that plays an important role in phosphate homeostasis by mediating cellular phosphate uptake. Unlike PiT1 which can be highly regulated, PiT2 expression seems more stable, except under adverse toxic effects when phosphate homeostasis is disrupted.

- **XPR1** is the only identified inorganic phosphate exporter in metazoans. As such, it certainly plays a unique role in inorganic phosphate homeostasis along with PiT1 and PiT2 which ensure phosphate import.

- **FLVCR1** (solute carrier family 49, facilitated heme transporter member 1 –SLC49A1-) is the only, experimentally demonstrated, heme exporter at the cell surface. It plays a critical role in erythropoiesis by protecting developing erythroid cells from heme toxicity. More generally, it regulates intracellular free heme concentration to deal with heme intrinsic toxicity along with heme oxygenases. It is highly implicated in cellular oxidoreductive metabolism.

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References


Autophagy is a critical regulator of memory CD8(+) T cell formation. Puleston DJ et al., Elife. 2014 Nov 11;3.

HIV-1 pathogenicity and virion production are dependent on the metabolic phenotype of activated CD4+ T cells. Hegedus A et al., Retrovirology. 2014 Nov 25;11(1):98.


Erythrocyte Glut1 triggers dehydroascorbic acid uptake in mammals unable to synthesize vitamin C. Montel-Hagen A et al., Cell 2008. 132:1039-1048.


Isolated receptor binding domains of HTLV-1 and HTLV-2 envelopes bind Glut-1 on activated CD4+ and CD8+ T cells. Kinet S et al., Retrovirology 2007. 4:31.


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