**Supplementary Table 2. Metabolic fluxes in the model of tumor cell metabolism.**

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| --- | --- | --- | --- |
| **Flux** | **Description** | **Unit** | **Remarks** |
| Metabolic model – biochemical conversion | | | |
| Jhead | flux in head section of glycolysis | µmol 6-carbon units/liter total intracellular H2O/s | glycolytic flux in section from glucose to FBP |
| Jtail | flux in tail section of glycolysis | µmol 3-carbon units/liter total intracellular H2O/s | glycolytic flux in section from FBP to pyruvate |
| Jmit | mitochondrial ATP synthesis | µmol /liter total intracellular H2O/s |  |
| Jlac | lactate dehydrogenase flux | µmol /liter total intracellular H2O/s | pyruvate to lactate conversion |
| Jhyd | ATP hydrolysis | µmol /liter total intracellular H2O/s | by all cellular processes that use ATP except the head section of glycolysis |
| Jbreakdown,ADP | breakdown of ADP | µmol /liter total intracellular H2O/s | ADP to AMP and subsequently to adenosine, inosine, hypoxanthine etc. (*1, 2*) |
| Jsynth,ADP | ADP synthesis | µmol /liter total intracellular H2O/s | adenine nucleotide synthesis from adenosine, inosine, hypoxanthine etc. and de novo |
| Jstore | metabolite storage taken from glycolytic intermediates | µmol 6-carbon units/liter total intracellular H2O/s | carbon-containing metabolites (e.g. nucleosides, glycogen, serine, etc.) |
| Jpyr,mit | pyruvate metabolism by mitochondria | µmol /liter total intracellular H2O/s | pyruvate consumed by mitochondrial oxidative metabolism |
| Jnadh,mit | NADH used by mitochondria | µmol /liter total intracellular H2O/s | NADH taken up for oxidative phospho-rylation via reducing equivalent shuttles |
| JATP,glyc | net glycolytic ATP synthesis | µmol /liter total intracellular H2O/s |  |
| Tissue model – diffusive fluxes | | | |
| Jdiff,O2 | diffusion of oxygen per liter intracellular H2O | µmol / liter intracellular H2O / s | net diffusion into tissue layer |
| Jdiff,M | diffusion of metabolite M per liter intracellular H2O | µmol / liter intracellular H2O / s | M = glucose, lactate or pyruvate |

**References**

1. G. Glaser, H. Giloh, J. Kasir, M. Gross, J. Mager, On the mechanism of the glucose-induced ATP catabolism in ascites tumour cells and its reversal by pyruvate. *Biochem J* **192**, 793-800 (1980).

2. K. Overgaard-Hansen, Metabolic regulation of the adenine nucleotide pool. I. Studies on the transient exhaustion of the adenine nucleotides by glucose in Ehrlich ascites tumor cells. *Biochim Biophys Acta* **104**, 330-347 (1965).