

Privileged immune cell upon activation

How it changes its own metabolism and metabolism of the whole organism

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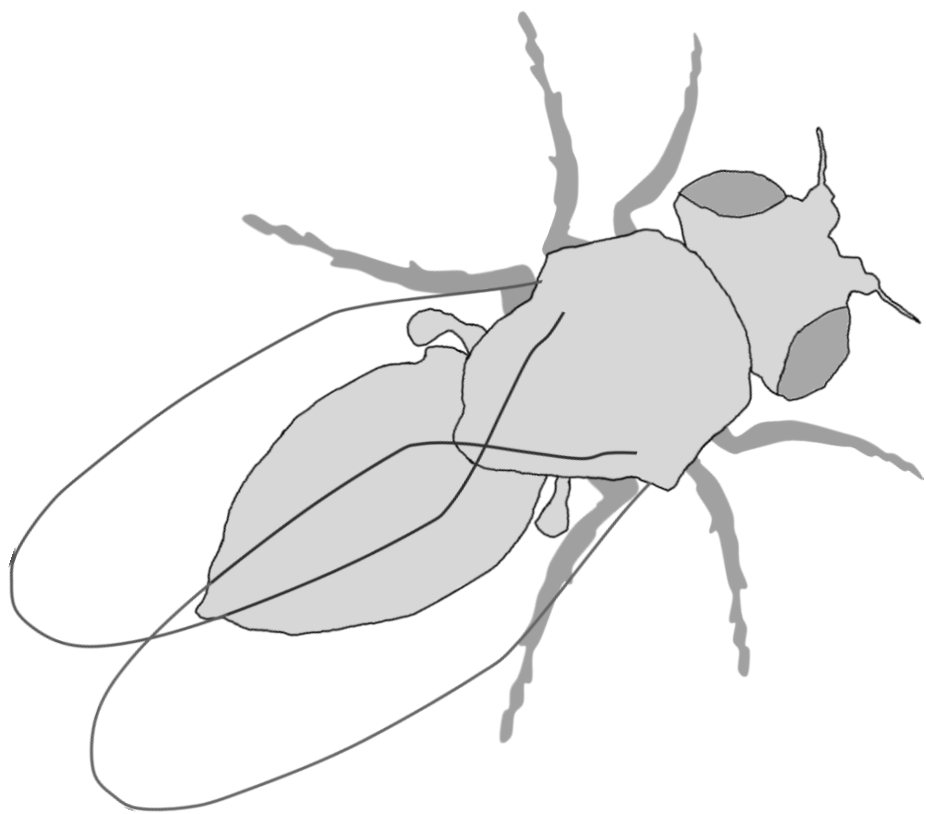
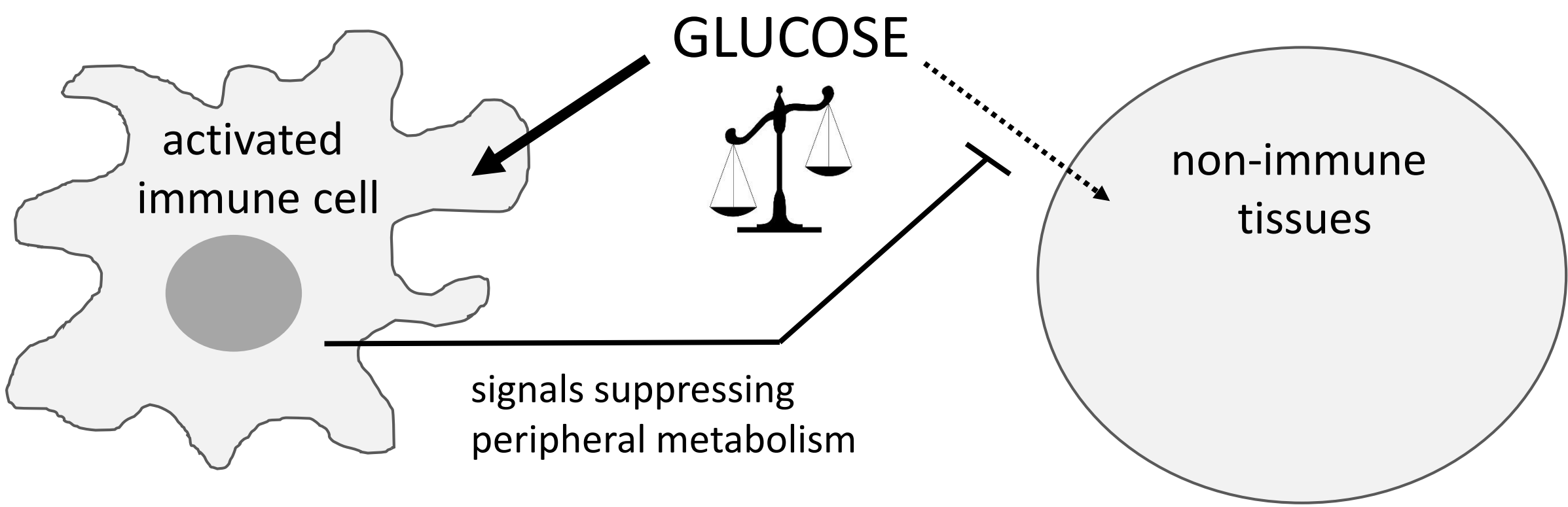
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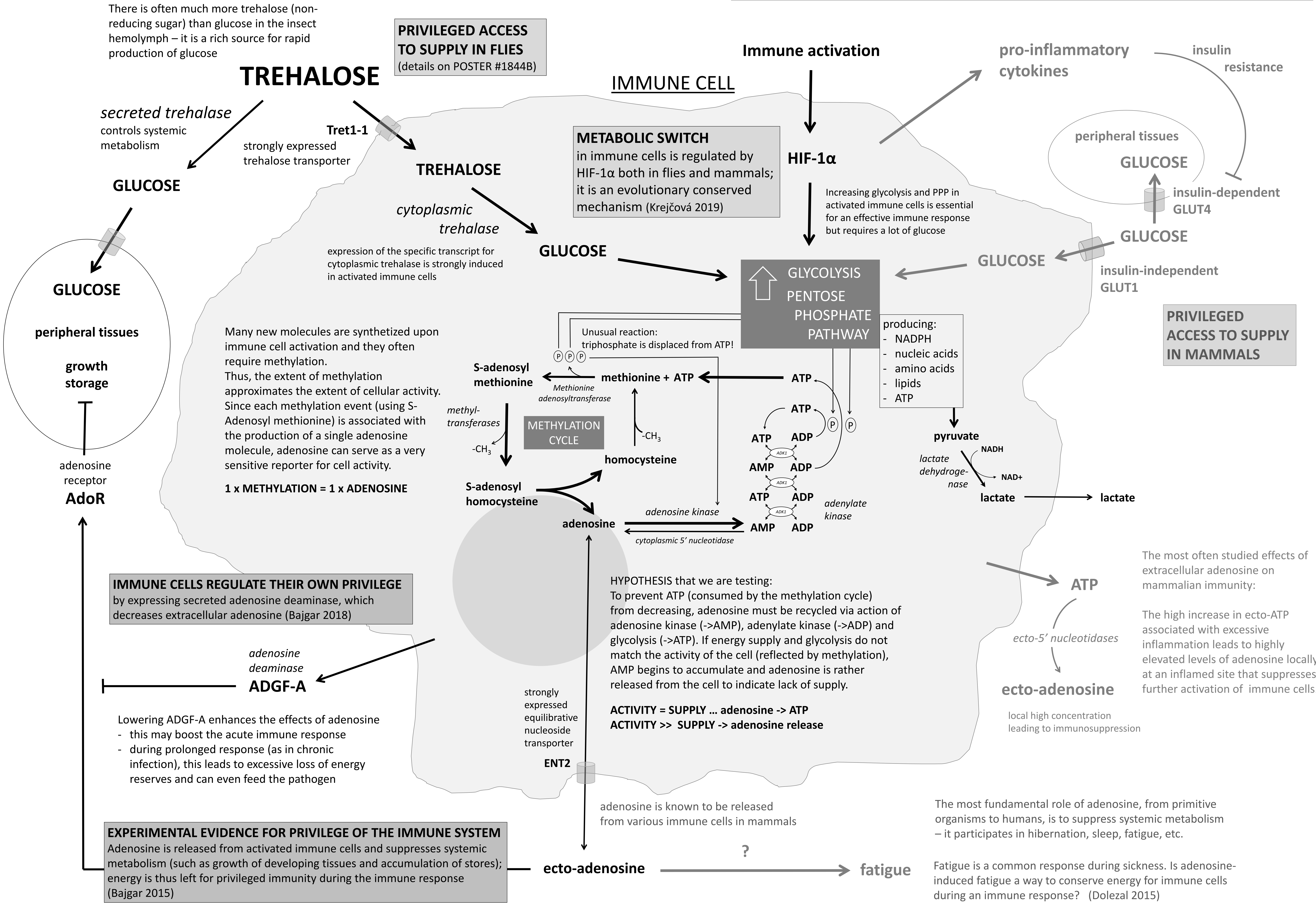
CONCEPT OF PRIVILEGED IMMUNE SYSTEM

Activated immune cells initiate a number of previously silenced processes that are associated with significantly altered metabolism, in particular increased glycolysis and the pentose phosphate pathway and re-wired TCA cycle. This intracellular metabolic switch makes the immune cells dependent on an increased supply of nutrients (as glucose and glutamine) and therefore the immune system becomes privileged within organism - the immune cells produce signals that suppress the metabolism of other non-immune tissues, ensuring that the immune system receives sufficient energy/nutrients upon activation.



We use fly *Drosophila melanogaster* as a model ... trying to compare results to mammals

THEORETICAL CONCEPT OF SELFISH IMMUNE SYSTEM by Rainer Straub (2014)
According to this concept, insulin resistance, caused by pro-inflammatory cytokines, is a physiological way for the immune system to usurp energy during acute stress from the rest of the organism, since the immune cells themselves do not become insulin resistant.



CITED PUBLICATIONS

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