

## Nitrapool: Identification of the Factors Controlling Nitrate Pools in Plant Cells

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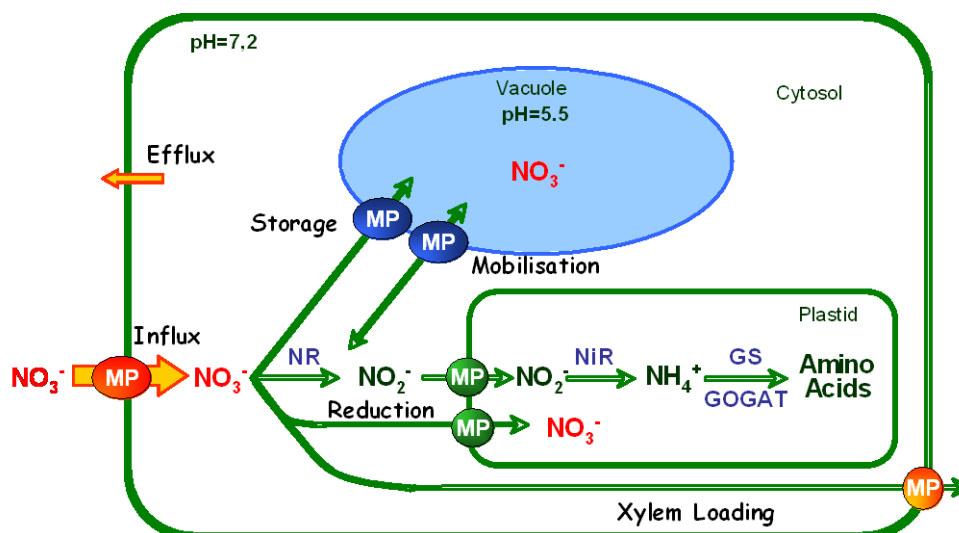
Nitrate is present within the different compartments of plant cells. The vacuole plays a role in nitrate storage and this pool size varies in response to external nitrate availability. In contrast, the cytosolic nitrate pool is rather constant and is responsible for two essential processes i) maintaining nitrate reduction and thus ensuring plant growth and development, and ii) providing a signal controlling plant developmental steps through the regulation of the expression of numerous genes. Finally, the chloroplast contains both nitrate in stable concentrations and nitrite.



The project aims to study the impact of i) modifications to the fluxes through the tonoplast on fluxes through the plasma membrane and the concentrations of cytosolic and vacuolar nitrate, ii) modifications to the nitrate fluxes through the plasma membrane on fluxes through the tonoplast, and the vacuolar and cytosolic nitrate pools. In parallel with these studies on nitrate fluxes, the role of nitrogen metabolism will be investigated by using variants for key target genes that particularly change nitrate reductase activity.

These studies use particular Arabidopsis genotypes, simple or double mutants, and over-expressers that are already available in the teams or will be generated during this project.

**Figure 1: Distribution/Routes of nitrate within the plant cell** (MP: membrane protein, NR: nitrate reductase, NiR: Nitrite reductase, GS: glutamine synthetase, GOGAT: glutamine synthase)



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