Sucrose & Starch synthesis

- Sucrose synthesized in the cytosol
- Starch is synthesized in the chloroplast
- Both from triose phosphate
- Phosphate translocator, antiport
Sucrose & Starch synthesis
Starch synthesis

- ADP-glucose intermediate
- Starch grains in afternoon
- Regulated through thioredoxin
Sucrose synthesis

- UDP-glucose intermediate
- SPS $\rightarrow$ sucrose phosphate, allosteric enzyme
- Sucrose phosphate phosphotase
- Regulated through fructose 2,6 bisphosphate
Regulation

- Competing reactions
- Triose P levels/Pi levels
- Increased Fru 2,6 leads to decreased sucrose synthesis
- Transport of sucrose