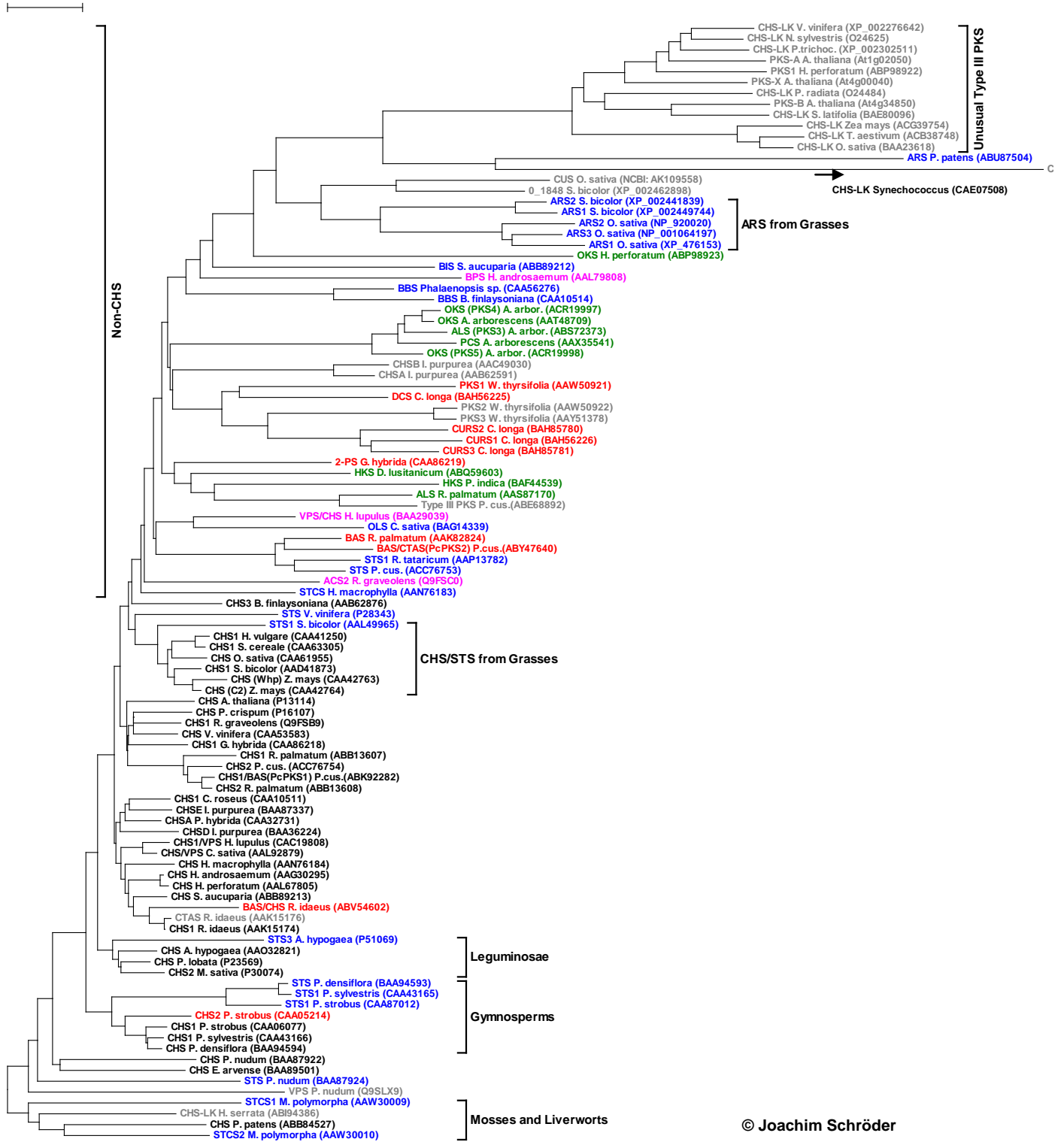


Relationship tree of selected plant type III PKS



Some notes

- **Color scheme**

Red: one or two condensations

Blue: three condensations, aldol condensation type cyclization to end product (e.g. STS)

Black: CHS, three condensations, Claisen condensation type cyclization to end product

Violet: other substrates as CHS, but three condensations, Claisen condensation type cyclization to end product

Green: more than three condensations

Grey: several definitions:

- *in vitro* function unknown or not found so far

- *in vitro* function known, but not physiological role (e.g. products unknown from that plant)

- **Note**

The page '[Links to Sequences of the Relationship Tree](#)' contains

- Explanations to names and sequences

- Links to the protein sequences

- Links to the pages discussing the enzymes

- **The tree does not contain all type III PKS from plants.**

This applies most importantly to CHSs:

- Chalcone synthase (CHS) is the prototype for these proteins for at least two reasons:

- a) it was the first member identified (*Petroselinum crispum*),

- b) it appears to be ubiquitous in plants,

- Nevertheless, CHSs are in most cases only included if they are of special interest, e.g.

- a) for historical reasons,

- b) the first 3D-structure,

- c) if the plant also contains non-CHS type III enzymes,

- CHSs are in many plants encoded in gene families, for closely related proteins with CHS activities (if the members were tested for function at all). Usually in such cases the tree contains only one representative member, to avoid cluttering with closely related proteins

- **The tree was developed with the program TREECON for Windows** (Van de Peer and De Wachter, 1994), using the inbuilt matrix for amino acid sequences, and the neighbour-joining method for distance calculations (Saitou and Nei, 1987).

References

- Saitou, N., Nei, M., 1987. The neighbour-joining method: a new method for reconstructing phylogenetic trees. *Molecular and Biological Evolution* 4, 406-425.
- Van de Peer, Y., De Wachter, R., 1994. TREECON for Windows: a software package for the construction and drawing of evolutionary trees for the Microsoft Windows environment. *Computational Applications in Biosciences* 10, 569-570.

File History:

- 29.04.2010: New phylogenetic tree; change of color scheme, for easier overview
- 14.04.2010: Addition of ARS sequences from *Sorghum bicolor* (*S. bicolor*) and rice (*Oryza sativa*, *O. sativa*)
- 19.02.2010: New color scheme, addition of *P.cus.* (*Polygonum cuspidatum*) sequences
- 21.08.2009: Update on various new sequences; see page '[Links to Sequences of the Relationship Tree](#)'
- 07.06.2009: Completely new design, many new sequences incorporated