

MS05-10 **Transporters involved in uptake of essential and toxic minerals in plants**

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Different from animals, plants are characterized by mineral nutrition. Plants require 17 elements for their growth and development, of which 14 are minerals. When a mineral is taken up by the roots from soil, it is translocated from the roots to the shoots, then distributed within the plants and finally to the seeds. Many transporters are required for these processes. In this symposium, transporters for Fe uptake (HvYS1) and translocation (OsFRDL1) will be introduced. HvYS1 is localized at the root epidermal cells and responsible for the transport of Fe-mugineic acid complex, while OsFRDL1 is localized at the root pericycle cells and transports citrate to the xylem for efficient translocation of Fe from the roots to the shoots in the form of Fe-citrate complex.

Transporters for uptake of silicon by the roots, release from the xylem and inter-vascular transfer of Si will also be introduced. Lsi1 and Lsi2 are both localized at the exodermis and endodermis of rice roots, but Lsi1 is at the distal side, whereas Lsi2 is at the proximal side and both transporters are required for Si uptake by the roots. Lsi6 is mainly localized at the xylem transfer cells of nodes and responsible for preferential Si distribution to the panicles.

On the other hand, plants are often exposed to metal toxicity stresses. Toxic metals such as Cd and As taken up by plants will affect our health through food-chain. In this symposium, transporters for toxic arsenite, aluminum and cadmium will also be introduced.