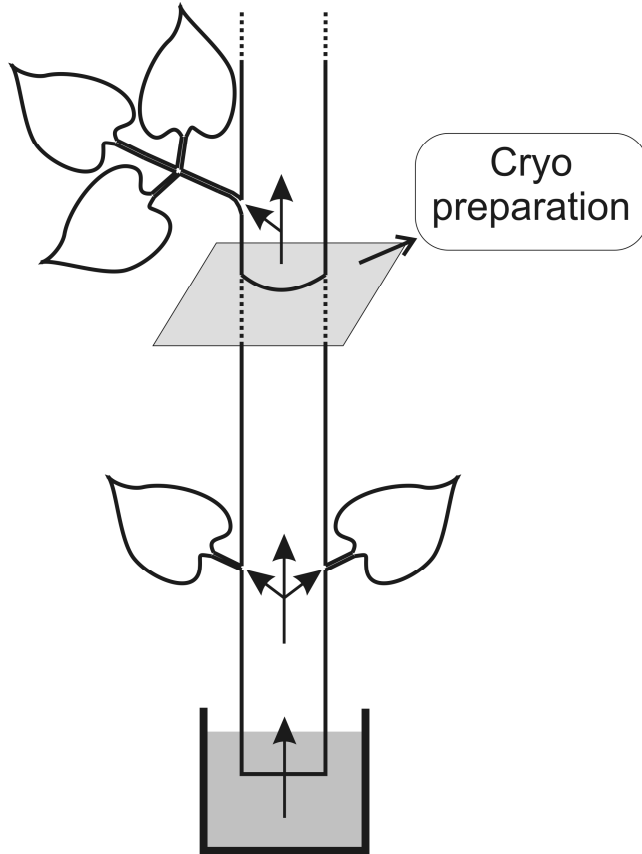


Setup for cut stem tracer application

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10 **Figure S1:** Method of administering nutrient tracer solution to a *Phaseolus vulgaris* (cv Fardenlosa Shiny) French bean. The stem was cut through under water directly above the soil and transferred to the tracer solution until sampling 20 or 240 minutes later. A 4 cm length of stem was excised from the internode above the primary leaves, about 25 cm from the cut. This sample was immediately shock frozen, and kept below -130°C until all analysis was completed. The sample was fractured to produce a cross-sectional surfaces that was cryo-planed and transferred to cryo-SIMS for isotopic analysis, and finally freeze-etched to show anatomical detail by cryo-SEM (see further details in Metzner et al., 2008).

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