

# AtUTr2 is an *Arabidopsis thaliana* nucleotide sugar transporter located in the Golgi apparatus capable of transporting UDP-galactose

Norambuena, Lorena

Nilo, Ricardo

Handford, Michael

Reyes, Francisca

Marchant, Lorena

Meisel, Lee

Orellana, Ariel

The synthesis of noncellulosic polysaccharides and glycoproteins in the plant cell Golgi apparatus requires UDP-galactose as a substrate. We have cloned and characterized a nucleotide sugar transporter from *Arabidopsis thaliana* (L.) Heynh. named AtUTr2. Expression in tobacco and *Saccharomyces cerevisiae* and subsequent biochemical characterization indicate that AtUTr2 transports UDP-galactose, but not UDP-glucose, UDP-N-acetyl glucosamine, UDP-xylose, UDP-glucuronic acid, GDP-fucose or GDP-mannose. Experiments expressing an AtUTr2-GFP fusion protein in onion epidermal cells suggest that AtUTr2 is located in the Golgi apparatus. Finally, northern analysis indicates that the AtUTr2 transcript was more abundant in roots and calli although it was also present in other *Arabidopsis* organs but at lower levels. Therefore, AtUTr2 is a nucleotide sugar transporter capable of transporting UDP-galactose that may play an important role in the synthesis of galactose-containing glycoconjugates in Arab