

Nitrate transporters : an overview in legumes

Submitted by Elisabeth Planchet on Fri, 06/08/2018 - 10:46

Titre	Nitrate transporters : an overview in legumes
Type de publication	Article de revue
Auteur	Pellizzaro, Anthoni [1], Alibert, B�n�dicte [2], Planchet, Elisabeth [3], Limami, Anis M. [4], Mor�re-Le Paven, Marie-Christine [5]
Editeur	Springer Verlag
Type	Article scientifique dans une revue � comit� de lecture
Ann�e	2017
Langue	Anglais
Date	Octobre 2017
Num�ro	4
Pagination	585-595
Volume	246
Titre de la revue	Planta
ISSN	0032-0935
Mots-cl�s	Lotus japonicus [6], Medicago truncatula [7], Nitrate signaling [8], NPF [9], NRT2 [10]
R�sum� en anglais	<p>Main conclusion</p> <p>The nitrate transporters, belonging to NPF and NRT2 families, play critical roles in nitrate signaling, root growth and nodule development in legumes. Nitrate plays an essential role during plant development as nutrient and also as signal molecule, in both cases working via the activity of nitrate transporters. To date, few studies on NRT2 or NPF nitrate transporters in legumes have been reported, and most of those concern <i>Lotus japonicus</i> and <i>Medicago truncatula</i>. A molecular characterization led to the identification of 4 putative LjNRT2 and 37 putative LjNPF gene sequences in <i>L. japonicus</i>. In <i>M. truncatula</i>, the NRT2 family is composed of 3 putative members. Using the new genome annotation of <i>M. truncatula</i> (Mt4.0), we identified, for this review, 97 putative MtNPF sequences, including 32 new sequences relative to previous studies. Functional characterization has been published for only two MtNPF genes, encoding nitrate transporters of <i>M. truncatula</i>. Both transporters have a role in root system development via abscisic acid signaling: MtNPF6.8 acts as a nitrate sensor during the cell elongation of the primary root, while MtNPF1.7 contributes to the cellular organization of the root tip and nodule formation. An in silico expression study of MtNPF genes confirmed that NPF genes are expressed in nodules, as previously shown for <i>L. japonicus</i>, suggesting a role for the corresponding proteins in nitrate transport, or signal perception in nodules. This review summarizes our knowledge of legume nitrate transporters and discusses new roles for these proteins based on recent discoveries.</p>
URL de la notice	http://okina.univ-angers.fr/publications/ua17030 [11]
DOI	10.1007/s00425-017-2724-6 [12]

Liens

- [1] <http://okina.univ-angers.fr/apellizzaro/publications>
- [2] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=13092>
- [3] <http://okina.univ-angers.fr/elisabeth.planchet/publications>
- [4] <http://okina.univ-angers.fr/m.limami/publications>
- [5] <http://okina.univ-angers.fr/mariechristine.lepaven/publications>
- [6] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=24679>
- [7] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=10235>
- [8] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=24680>
- [9] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=24681>
- [10] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=24682>
- [11] <http://okina.univ-angers.fr/publications/ua17030>
- [12] <http://dx.doi.org/10.1007/s00425-017-2724-6>
- [13] <https://link.springer.com/article/10.1007/s00425-017-2724-6>

Publié sur *Okina* (<http://okina.univ-angers.fr>)