Impacts of light and temperature on shoot branching gradient and expression of strigolactone synthesis and signalling genes in rose

Titre	Impacts of light and temperature on shoot branching gradient and expression of strigolactone synthesis and signalling genes in rose
Type de publication	Article de revue
Auteur	Djennane, Samia [1], Hibrand-Saint Oyant, Laurence [2], Kawamura, Koji [3], Lalanne, David [4], Laffaire, Michel [5], Thouroude, Tatiana [6], Chalain, Séverine [7], Sakr, Soulaiman [8], Boumaza, Rachid [9], Foucher, Fabrice [10], Leduc, Nathalie [11]
Editeur	Wiley
Type	Article scientifique dans une revue à comité de lecture
Année	2014
Langue	Anglais
Date	2014
Numéro	3
Pagination	742 - 757
Volume	37
Titre de la revue	Plant, Cell & Environment
ISSN	1365-3040
Mots-clés	axillary bud [12], Bud burst [13], environmental factors [14], growth regulators [15], hormones [16], MAX genes [17], Plant architecture [18], Rosa [19]
Résumé en anglais	Light and temperature are two environmental factors that deeply affect bud outgrowth. However, little is known about their impact on the bud burst gradient along a stem and their interactions with the molecular mechanisms of bud burst control. We investigated this question in two acrotonic rose cultivars. We demonstrated that the darkening of distal buds or exposure to cold (5°C) prior to transfer to mild temperatures (20°C) both repress acrotony, allowing the burst of quiescent medial and proximal buds. We sequenced the strigolactone pathway MAX-homologous genes in rose and studied their expression in buds and internodes along the stem. Only expressions of RwMAX1, RwMAX2 and RwMAX4 were detected. Darkening of the distal part of the shoot triggered a strong increase of RwMAX2 expression in darkened buds and bark-phloem samples, whereas it suppressed the acropetal gradient of the expression of RwMAX1 observed in stems fully exposed to light. Cold treatment induced an acropetal gradient of expression of RwMAX1 in internodes and of RwMAX2 in buds along the stem. Our results suggest that the bud burst gradient along the stem cannot be explained by a gradient of expression of RwMAX genes but rather by their local level of expression at each individual position.
URL de la notice	http://okina.univ-angers.fr/publications/ua7937 [20]

DOI	10.1111/pce.12191 [21]
Lien vers le document	http://dx.doi.org/10.1111/pce.12191 [21]

Liens
[1] http://okina.univ-angers.fr/publications?f[author]=11894
[2] http://okina.univ-angers.fr/l.hibrand/publications
[3] http://okina.univ-angers.fr/publications?f[author]=12013
[4] http://okina.univ-angers.fr/publications?f[author]=12015
[5] http://okina.univ-angers.fr/publications?f[author]=13042
[6] http://okina.univ-angers.fr/publications?f[author]=11915
[7] http://okina.univ-angers.fr/publications?f[author]=13043
[8] http://okina.univ-angers.fr/publications?f[author]=11718
[9] http://okina.univ-angers.fr/publications?f[author]=11724
[10] http://okina.univ-angers.fr/f.foucher/publications
[11] http://okina.univ-angers.fr/n.leduc/publications
[12] http://okina.univ-angers.fr/publications?f[keyword]=11777
[13] http://okina.univ-angers.fr/publications?f[keyword]=12245
[14] http://okina.univ-angers.fr/publications?f[keyword]=12384
[15] http://okina.univ-angers.fr/publications?f[keyword]=12385
[16] http://okina.univ-angers.fr/publications?f[keyword]=12386
[17] http://okina.univ-angers.fr/publications?f[keyword]=12387
[18] http://okina.univ-angers.fr/publications?f[keyword]=12166
[19] http://okina.univ-angers.fr/publications?f[keyword]=12124
[20] http://okina.univ-angers.fr/publications/ua7937
[21] http://dx.doi.org/10.1111/pce.12191