Plant Physiology®

July 2014 • Vol. 165 • No. 3

The electronic form of this issue, available as of July 8, 2014, at www.plantphysiol.org, is considered the journal of record.

On the Cover: Filamentous plant pathogens such as the late blight pathogen *Phytophthora infestans* form digit-like infection structures called haustoria inside plant cells. Haustoria enable the pathogen to feed on its host, and secrete effector proteins that modulate the physiology of the host cell to facilitate infection. Haustoria are enveloped by a specialized plant-derived membrane (the extrahaustorial membrane) the biogenesis of which is poorly understood. In this issue, Bozkurt et al. (pp 1005–1018) used the plant membrane microdomain protein REMORIN1.3, known to accumulate around *P. infestans* haustoria, to reveal discrete extrahaustorial domains labeled by REMORIN1.3 and *P. infestans* effector AVRblb2. SYNAPTOTAGMIN1, another previously identified perihaustorial protein, localized to subdomains which are mainly not labeled by REMORIN1.3 and AVRblb2. Functional characterization of REMORIN1.3 revealed that it is a susceptibility factor that promotes infection by *P. infestans*. This activity, and REMORIN1.3 recruitment to the EHM, require REM1.3 membrane-binding domain. These results implicate REMORIN1.3 membrane microdomains in plant susceptibility to an oomycete pathogen. The cover shows *Nicotiana benthamiana* epidermal cells expressing fluorescently labeled REMORIN1.3 (blue) infected by *P. infestans* expressing the red fluorescent protein (red). Cover image credits: Sylvain Raffaele.

ON THE INSIDE

TOPICAL REVIEWS

BREAKTHROUGH TECHNOLOGIES

RESEARCH ARTICLES

BIOCHEMISTRY AND METABOLISM

Continued on next page

Continued from preceding page

CELL BIOLOGY

GENES, DEVELOPMENT, AND EVOLUTION

Continued on next page

Continued from preceding page

MEMBRANES, TRANSPORT, AND BIOENERGETICS

Continued on next page

Continued from preceding page

SIGNALING AND RESPONSE

Continued on next page

Continued from preceding page

SYSTEMS AND SYNTHETIC BIOLOGY

CORRECTION

[C] Some figures in this article are displayed in color online but in black and white in the print edition.
[W] The online version of this article contains Web-only data.
[OPEN] Articles can be viewed online without a subscription.