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Programme & Abstracts



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16th European Conference on Fungal Genetics

5-8 March 2023
Innsbruck, Austria



CONCURRENT SESSION 4.2 FUNGAL CELL BIOLOGY

TUESDAY, MARCH 7

17:30 – 19:30

Location: *Hall Brüssel (Congress Innsbruck)*

CHAIRS:

Alexander Lichius, Miguel A. Peñalva

CS4.2.1

THE HUM COMPLEX IS A MYOSIN-5 ADAPTOR TO SECRETORY VESICLES.

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The biogenesis of secretory vesicles and their transport to the vesicle supply center (VSC) have been intensively studied in *Aspergillus nidulans*. The oligomeric complex TRAPP^{II}, which acts as GEF for RAB11—formerly denoted RabE (Pinar and Peñalva, 2021)—is recruited to trans-Golgi network (TGN) cisternae at late stages of their maturation. TRAPP^{II} recruits RAB11, and when a sufficient amount of the GTPase accumulates on any given TGN cisterna, its identity shifts from ‘Golgi’ to ‘post-Golgi’, engages molecular motors and tears off into secretory vesicles that are swiftly transported to the VSC. F-actin dependent myosin-5 focuses secretory vesicles at the VSC. Myosin-5 contains a motor domain, a coiled-coil domain mediating dimerization, and a C-terminal globular head domain mediating cargo recognition. Using shotgun proteomics combined with bottom-up reconstitution approaches, we have characterized the HUM complex, consisting of UDS1 (upregulated during septation), HMSV (hook of myosin to secretory vesicles) and the dimeric globular head domain of myosin-5 (Pinar et al., 2022). By interaction of RAB11 with both the GTD and UDS1, the HUM complex acts as adaptor of RAB11 secretory vesicles to the motor. The phe-

notype of HUM ablation resembles that of a partial deficiency of myosin-5, and SVs do not concentrate in the SPK although they arrive to the apical dome by MT-dependent transport. As expected from the deficient SV focusing resulting from disabling HUM, *uds1Δ* and *hmsVΔ* affect hyphal morphogenesis.

Pinar, M., A. Alonso, V. de los Ríos, I. Bravo-Plaza, Á. de la Gándara, A. Galindo, E. Arias-Palomo, and M.Á. Peñalva. 2022. The type V myosin-containing complex HUM is a RAB11 effector powering movement of secretory vesicles. *iScience*. 25.

Pinar, M., and M.A. Peñalva. 2021. The fungal RABOME: RAB GTPases acting in the endocytic and exocytic pathways of *Aspergillus nidulans* (with excursions to other filamentous fungi). *Mol Microbiol*. 116:53-70.

