Myoblast fusion offers a 'muscular' response to regeneration

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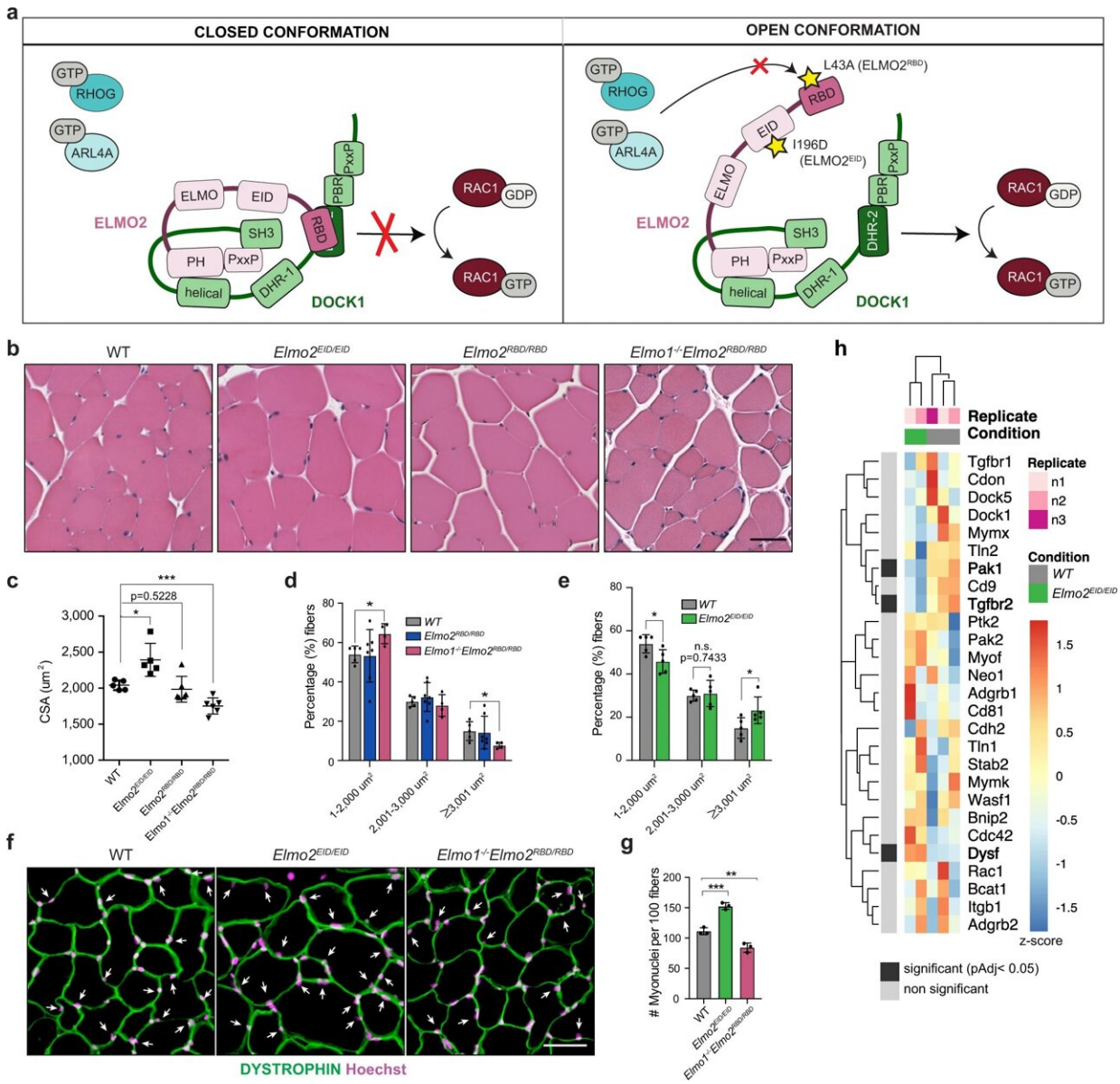

Manipulating ELMO2 conformational regulation impacts on myoblast fusion during muscle development and growth. **a** Schematic representation showing the closed and open conformations of the ELMO-DOCK complex. In the closed state, ELMO is in a closed conformation and the DHR-2 domain of DOCK is blocked by the RBD domain of ELMO, thus preventing RAC1 activation and the binding of interactors to the RBD of ELMO. Upon activation of the ELMO-DOCK complex, binding sites for ELMO interactors become available and the DHR2 of DOCK can activate RAC1. The RBD L43A mutation abrogates the binding of the RHOG and ARL4a GTPases, hence diminishing the signaling from ELMO/DOCK. The EID I196D mutation favors the open conformation of ELMO, which increases RAC1 activation by ELMO/DOCK. **b** Representative muscle fibers cross-sections of the indicated mice stained with H&E. **c** Quantification of **b** showing the mean myofibers cross-sectional area (CSA) +/−SD per genotype (n = 5 mice). **d**, **e** Distribution of myofibers size from (**b**) of the indicated mice. Data are presented as the mean values +/− SD (n = 5 mice). **f** Cross-sectional muscle sections of WT, $Elmo2^{EID/EID}$ and $Elmo1^{-/-}Elmo2^{RBD/RBD}$ mice stained with anti-DYSTROPHIN (green) and Hoechst (magenta). Arrowheads indicate myonuclei located inside the myofibers. **g** Quantification of the number of myonuclei located inside the myofibers of **e**. Data are presented as the mean values +/− SD (n = 3 mice). (Scale bar: 50 μm). The Student's t-test (for comparison of two independent groups) was used to calculate the P-values (two-tailed) presented in **c–e**, **g**; *P