

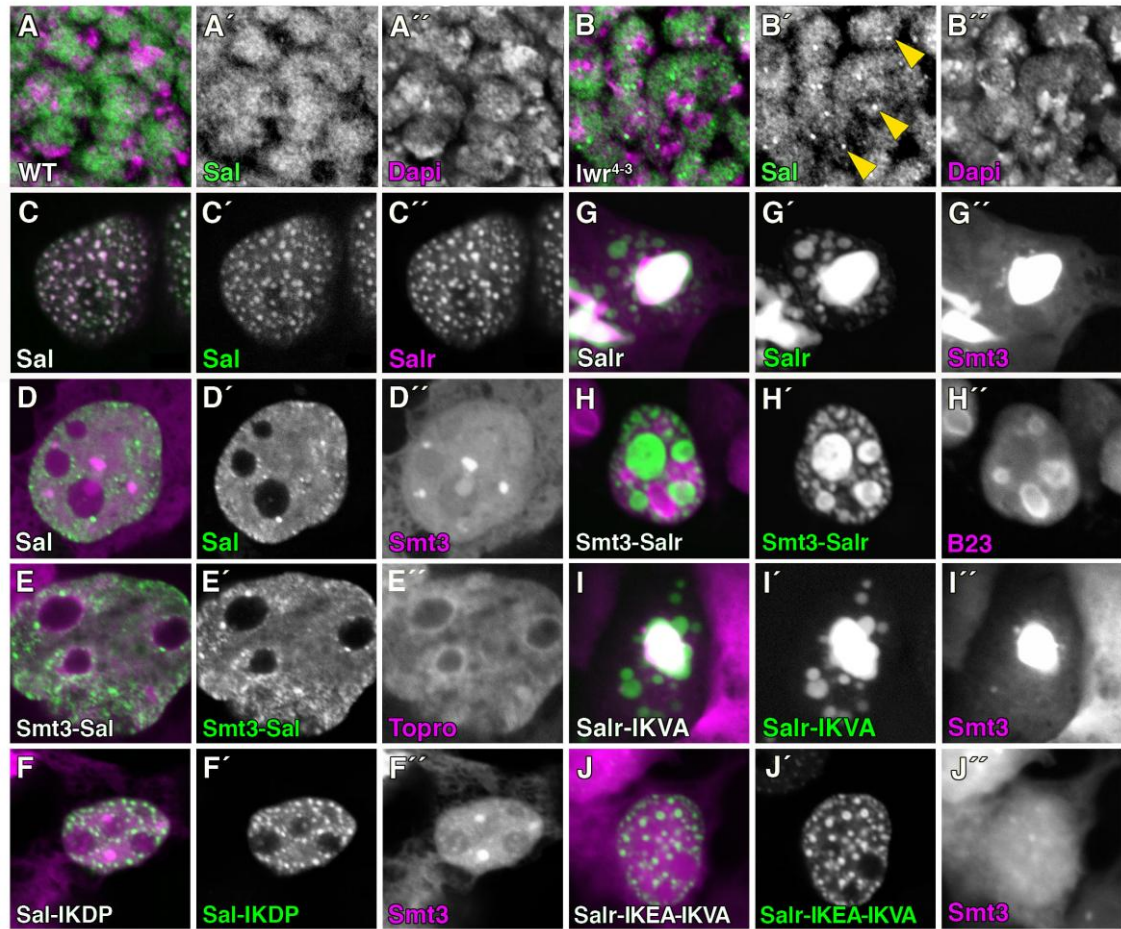
Post-translational modification by sumoylation is crucial to the activity of the Spalt-like family of transcription factors

This work has been published by a team composed of researchers from several groups at CIC bioGUNE and constitutes a part of the PhD thesis presented by Jonatan Sánchez at the University of the Basque Country.

The Spalt-like (Sall) family of zinc finger transcription factors is conserved throughout evolution and is involved in fundamental biological processes, as well as in embryonic stem cell maintenance. Little is known about the post-translational modifications that might regulate the activity of this family of transcription factors. CIC bioGUNE researchers have shown that Sall proteins can be modified by the Small Ubiquitin-like Modifier (Sumo). This is a small protein that binds target proteins and influences their activity or their sub-cellular localization. In the case of *Drosophila*, the Sumo homolog Smt3 affects Sall proteins sub-cellular localization and their activity *in vivo*, using wing vein development as a paradigm to form functional variations. The sumoylation status of Sall proteins affects their capacity to induce ectopic vein formation through the regulation of target genes.

These results suggest a new level of regulation of Sall activity *in vivo*. The evolutionary conservation of this family of transcription factors suggests a functional role for sumoylation in human SALL members.

Link to the article: <http://www.ncbi.nlm.nih.gov/pubmed/20562097>



Sumoylation influences Sal nuclear localization. (A-J) Confocal pictures of WT (A) or Sumo conjugation *lwr*⁴⁻³ mutant (B) imaginal discs, or HEK-293 FT cells overexpressing the constructs indicated in white (C-J), showing in green the localization of endogenous (A, B) or overexpressed Sal (C, D), Smt3-Sal (E), Salr-IKDP (F), Salr (G), Smt3-Salr (H), Salr-IKVA (I) or Salr-IKEA-IKVA (J) and in purple Dapi (A, B), Salr (C), Smt3 (D, F, G, I, J), Topro (E) or B23 (H). (A'-J'') Black and white pictures show single green or purple images. Arrowheads indicate subnuclear domains.