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Oncology

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Our laboratory is interested in characterizing the role of the Hippo signaling pathway in cancer. While this pathway is a key regulator of organ size and embryonic development, the past decade has highlighted its function in driving tumorigenesis and drug resistance mediated by the aberrant activation of YAP/TAZ-TEAD transcriptional complexes. With significant research reported thus far in the dissection of upstream regulators and downstream targets of the pathway, we are still lacking a detailed mechanistic understanding of the pathway in different disease-relevant settings.

An extensive combination of large-scale functional genomics screens, CRISPR/Cas9 genome editing, epi-/genomic profiling and mass spectrometry-based proteomics will enable the dissection of novel vulnerabilities in cancer indications driven by aberrant Hippo pathway activity and provide unprecedented resolution of YAP-TAZ/TEAD contributions in disease.

We are working in close collaboration with different departments within NIBR Giorgio Galli's lab [2], (Postdoc Co-Mentor), and offer the opportunity for interactions with academic labs,

locally and globally.

Selected Publications

Project DRIVE: A compendium of cancer dependencies and synthetic lethal relationships uncovered by large-scale, deep RNAi screening [3]
McDonald ER 3rd, de Weck A, Schlabach MR, Billy E, Mavrakis KJ, Hoffman GR,..., Kauffmann A*, Stegmeier F*, Hofmann F*, Schmelzle T* (lead contact), Sellers WR*
*equal senior author contributions
Cell 2017 Jul 27; 170(3):577-592

Disordered methionine metabolism in MTAP/CDKN2A-deleted cancers leads to dependence on PRMT5 [4]
Mavrakis KJ, McDonald ER 3rd, Schlabach MR, Billy E, Hofmann GR,..., Schmelzle T*, Hofmann F*, Stegmeier F*, Sellers WR*
*equal senior author contributions
Science 2016 Mar 11; 351(6278):1208-13

The tyrosine phosphatase PTPN14 is a negative regulator of YAP activity [5]
Michaloglou C, Lehmann W, Martin T, Delaunay C, Hueber A,..., Christofori G, Sellers WR, Hofmann F, Schmelzle T
PLoS One 2013 Apr 16; 8(4):e61916.

Click here [6] for additional publications.

Links
[1] https://www.novartis.com/our-science/postdoc-program/research-themes/cancer-biology/tobias-schmelzle-phd
[2] https://www.novartis.com/our-science/postdoc-program/research-themes/cancer-biology/giorgio-g-galli-phd
[3] https://www.ncbi.nlm.nih.gov/pubmed/28753431
[4] https://www.ncbi.nlm.nih.gov/pubmed/26912361
[5] https://www.ncbi.nlm.nih.gov/pubmed/23613971
[6] https://www.ncbi.nlm.nih.gov/pubmed/30058229,30024886,28960584,28753431,28430104,27260157,26912361,262