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Oncology

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Across our genome, DNA elements with non-coding, yet key regulatory function, harbor characteristic epigenetic signatures that ultimately impact transcriptional output. Such elements are bound and controlled by a tightly regulated and highly interconnected network of transcription factors and co-factors to shape the gene expression landscape determining cell identity and pathological states.

Our laboratory is interested in functionally dissecting such Transcriptional Networks in cancer subtypes bearing specific genetic lesions. To this end, we extensively perform functional genomics studies to interrogate the dependency of cancer models on oncogenic transcription factors (TF), their pathway modulators and target genes in order to identify novel cancer vulnerabilities. Moreover, we perform epi-/genomic and proteomic profiling on novel TFs to further characterize the molecular mechanisms underlying their oncogenic role.

We are working in close collaboration with different departments within NIBR, [Tobias Schmelzle's lab](#) ^[2], (Postdoc Co-Mentor) as well as [Dirk Schuebeler's lab](#) ^[3] at the FMI and [Charles Lin's lab](#)

[4] at the Baylor College of Medicine.

Selected Publications

YAP drives growth by controlling transcriptional pause release from dynamic enhancers. [5]
Galli GG, Carrara M, Yuan WC, Valdes-Quezada C, Gurung B, Pepe-Mooney B, Zhang T, Geeven G, Gray NS, de Laat W, Calogero RA, Camargo FD.
Mol Cell. 2015 Oct 15;60(2):328-37.

The Hippo transducer YAP1 transforms activated satellite cells and is a potent effector of embryonal rhabdomyosarcoma formation. [6]
Tremblay AM, Missiaglia E, Galli GG, Hettmer S, Urcia R, Carrara M, Judson RN, Thway K, Nadal G, Selfe JL, Murray G, Calogero RA, De Bari C, Zammit PS, Delorenzi M, Wagers AJ, Shipley J, Wackerhage H, Camargo FD.
Cancer Cell. 2014 Aug 11;26(2):273-87.

Prdm5 regulates collagen gene transcription by association with RNA polymerase II in developing bone. [7]
Galli GG, Honnens de Lichtenberg K, Carrara M, Hans W, Wuelling M, Mentz B, Multhaupt HA, Fog CK, Jensen KT, Rappsilber J, Vortkamp A, Coulton L, Fuchs H, Gailus-Durner V, Hrab? de Angelis M, Calogero RA, Couchman JR, Lund AH.
PLoS Genet. 2012;8(5):e1002711.

[Click here](#) [8] for additional publications.

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Links

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- [2] <https://www.novartis.com/our-science/postdoc-program/research-themes/cancer-biology/tobias-schmelzle-phd>
- [3] <https://www.fmi.ch/research/groupleader/?group=34>
- [4] <https://www.charleslinlab.org/>
- [5] <https://www.ncbi.nlm.nih.gov/pubmed/26439301>
- [6] <https://www.ncbi.nlm.nih.gov/pubmed/25087979>
- [7] <https://www.ncbi.nlm.nih.gov/pubmed/22589746>
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