PLURIPOTENT STEM CELLS

AND EPIGENETIC REPROGRAMMING

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FOR MORE INFORMATION, PLEASE VISIT OUR LABORATORY WEBPAGE:

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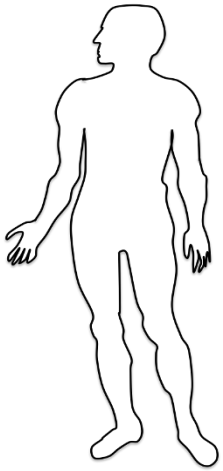
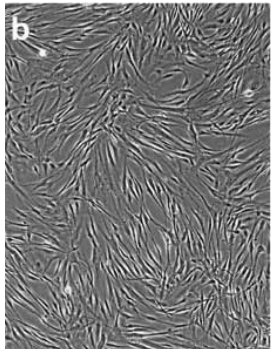
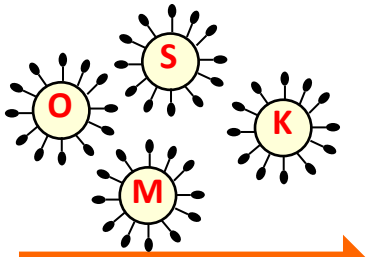
KOÇ UNIVERSITY

Somatic cell reprogramming
Induced Pluripotent Stem Cells (iPSCs)



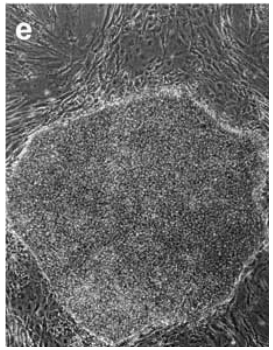
Skin Cell

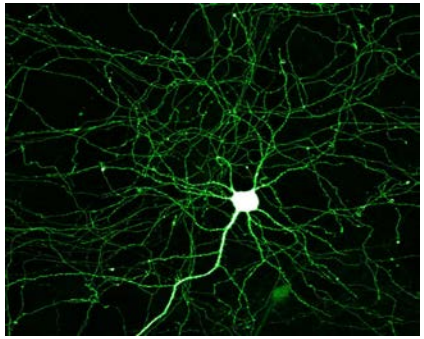




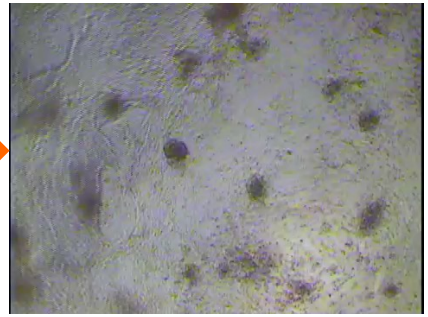
Reprogramming

iPSC

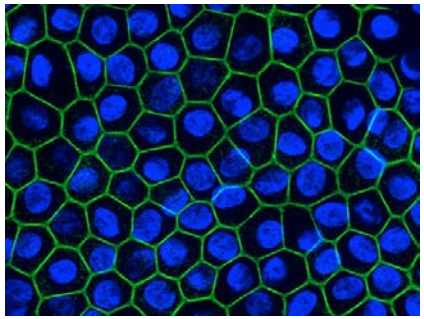




Neuron



Cardiomyocyte

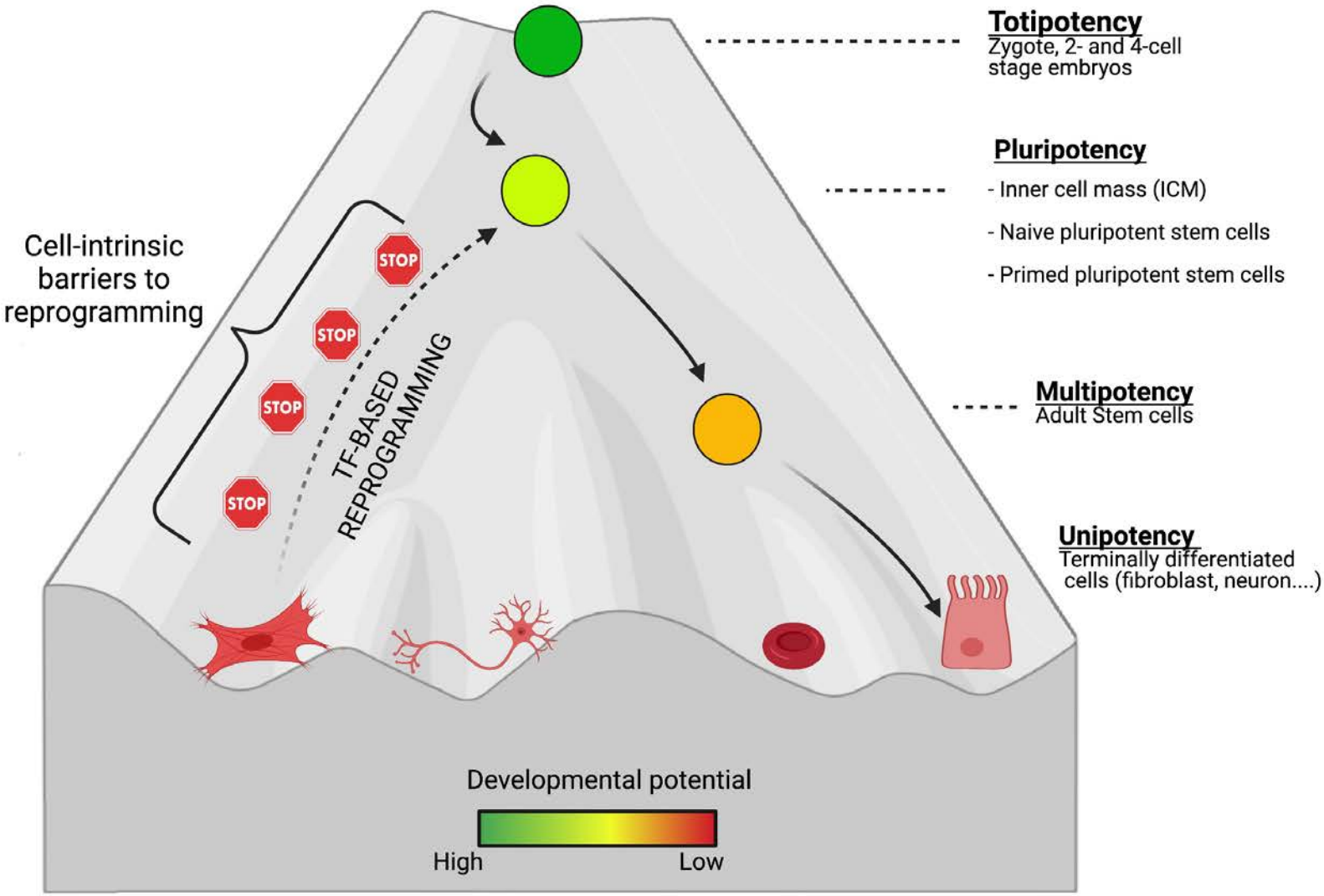


Retinal cell

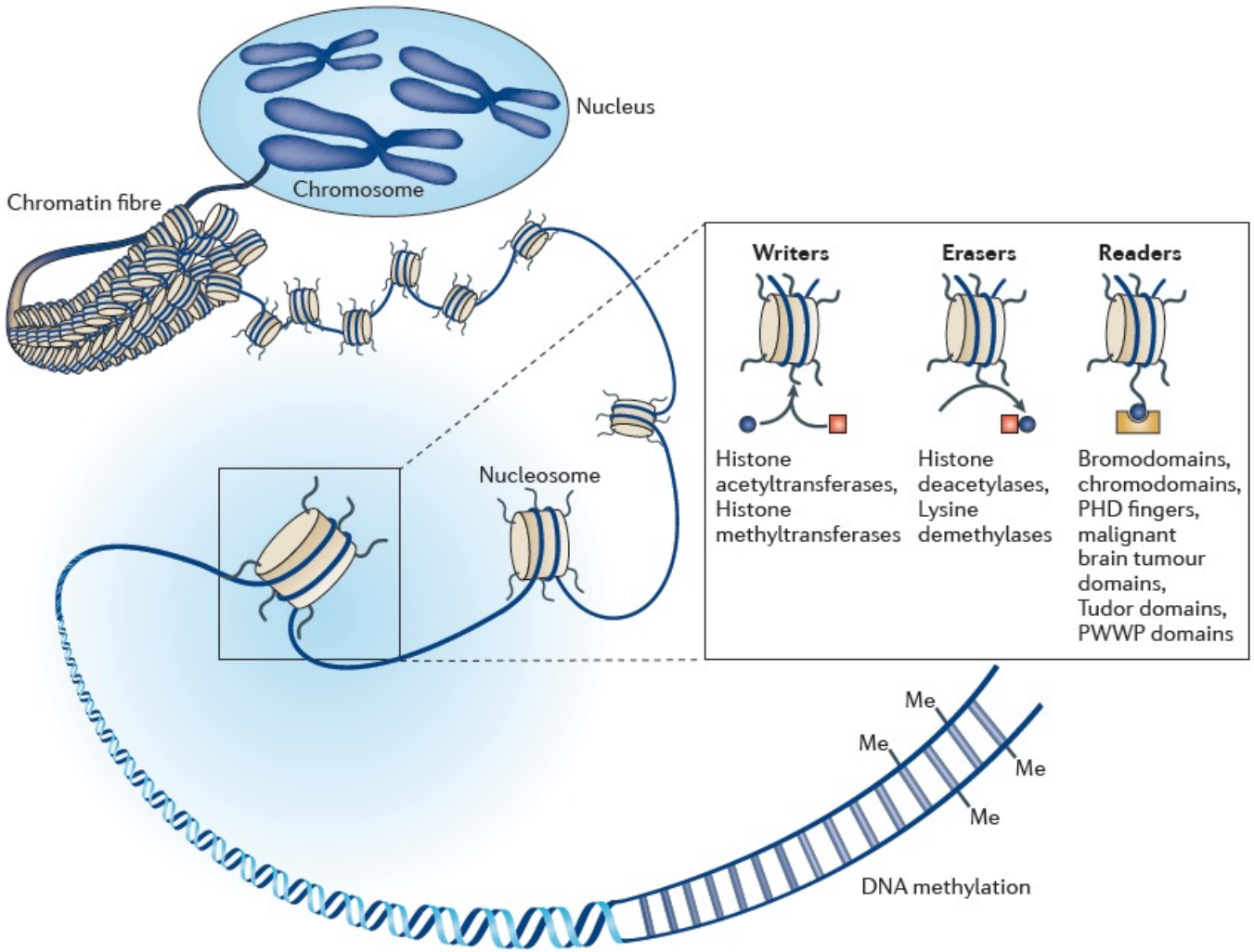
Our lab studies the molecular mechanisms of reprogramming. We want to understand how adult cells can be converted into induced pluripotent stem cells (iPSC)

1. **Chemical Screens**
2. **Genetic Screens (CRISPR)**

EPIGENETIC LANDSCAPE OF DEVELOPMENT

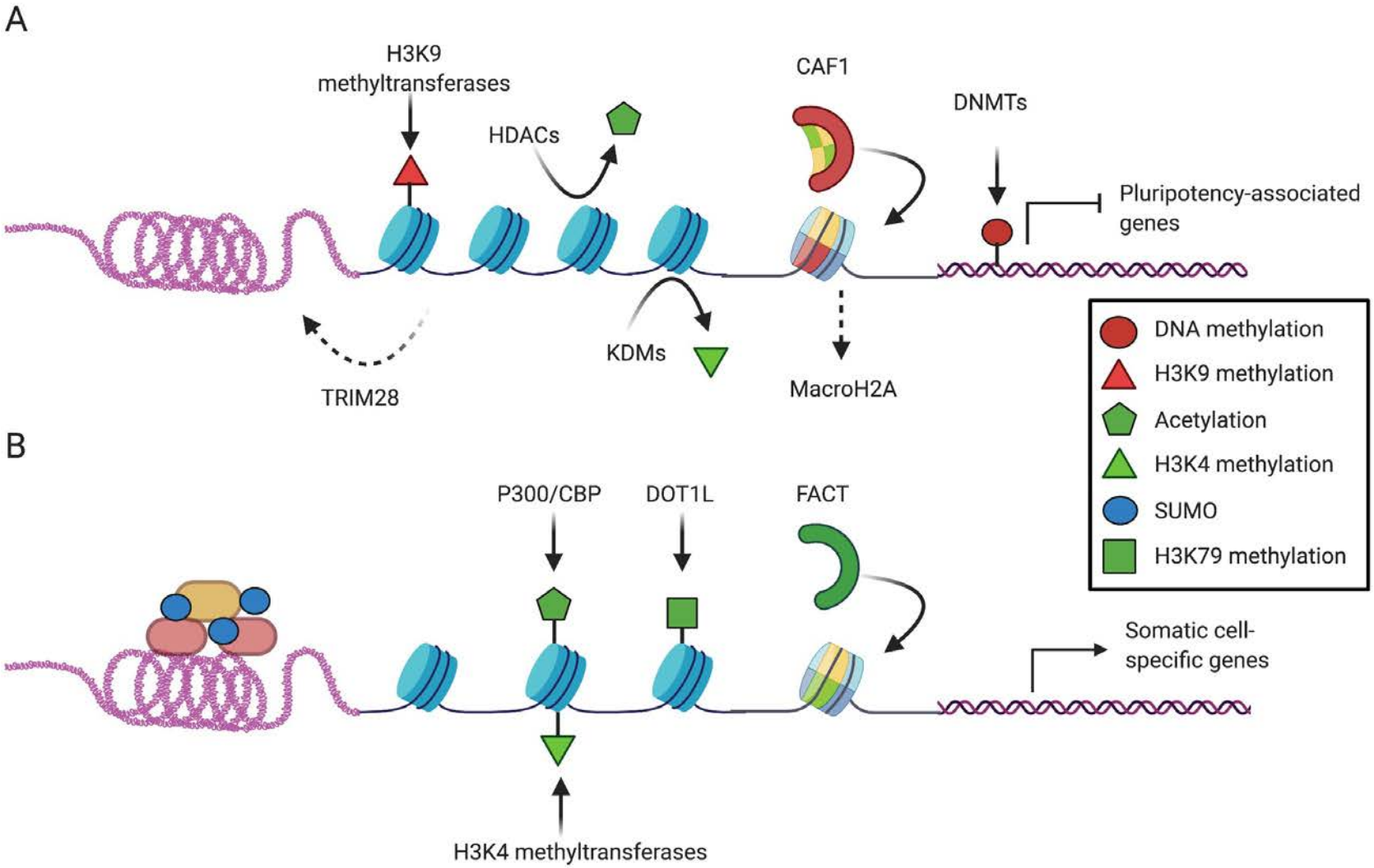


Chromatin modifiers and control of gene expression



Arrowsmith et al. 2012

Chromatin-based barriers to epigenetic reprogramming



Arabacı et al. *FASEB J* 2020

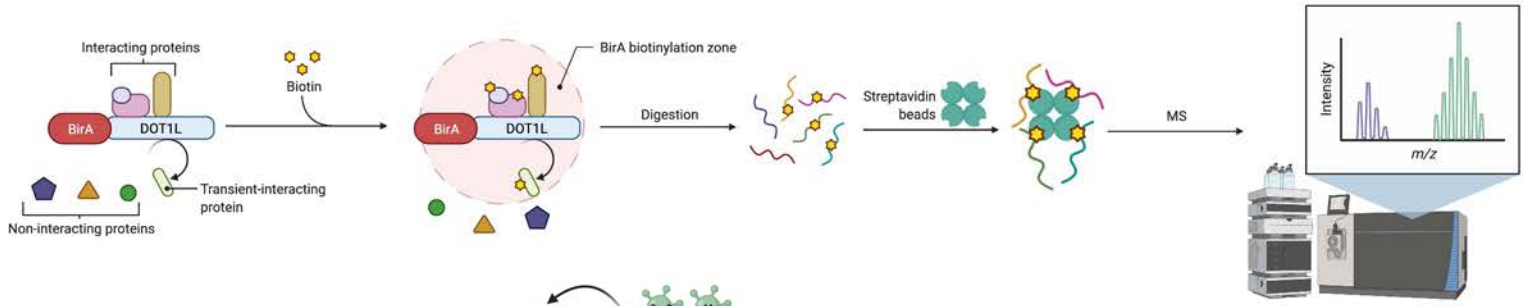
New Results

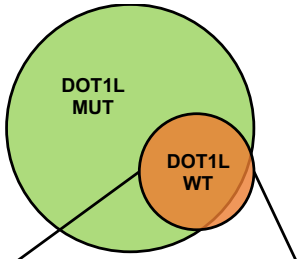
AF10 (MLLT10) prevents somatic cell reprogramming through regulation of DOT1L-mediated H3K79 methylation

Deniz Uğurlu-Çimen, Deniz Odluyurt, Kenan Sevinç, Nazlı Ezgi Özkan-Küçük, Burcu Özçimen, Deniz Demirtaş, Eray Enüstün, Can Aztekin, Martin Philpott, Udo Oppermann, Nurhan Özlü, Tamer T. Önder

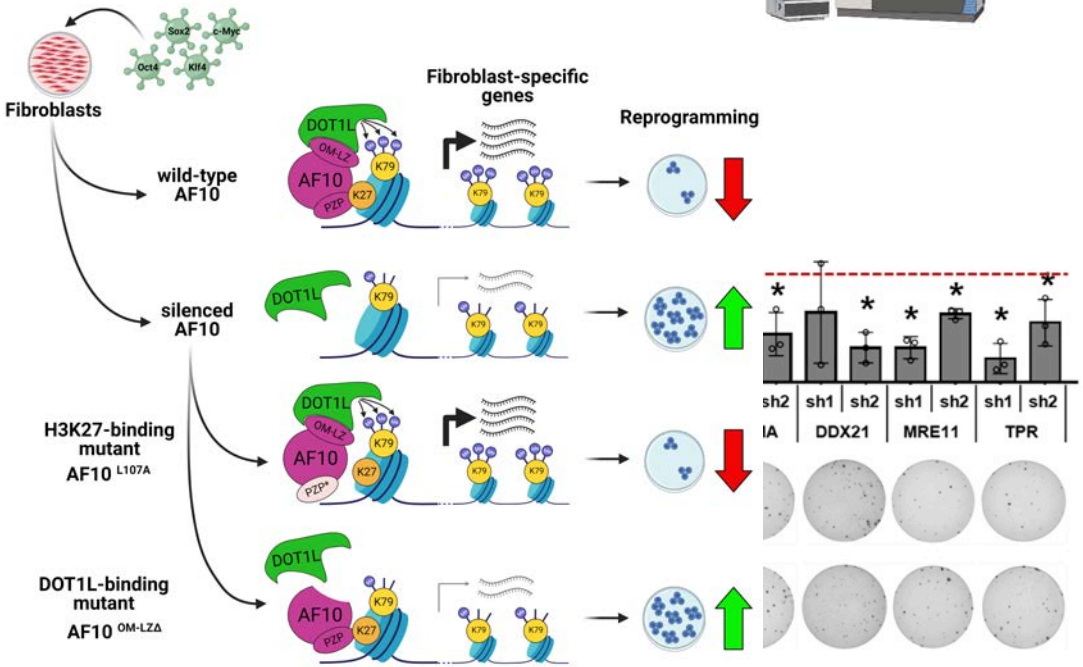
doi: https://doi.org/10.1101/2020.12.22.423908

This article is a preprint and has not been certified by peer review [what does this mean?].





Protein	% Coverage	PSM
DOT1L	31.6	123.0
TPR	3.7	13.5
KAISO	10.0	12.0
AF10	4.3	6.0
AF17	3.2	5.5
NUMA1	1.7	4.5
MRE11	3.7	4.0
NONO	5.4	3.5
ENL	4.3	3.0
SIN3B	2.2	2.0
Histone H1	5.9	1.5
DDX21	1.8	1.0



Uğurlu-Çimen D et al. *Epigenetics Chromatin*. 2021

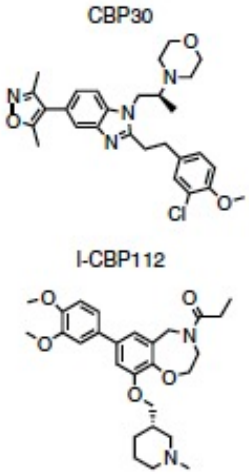
nature chemical biology

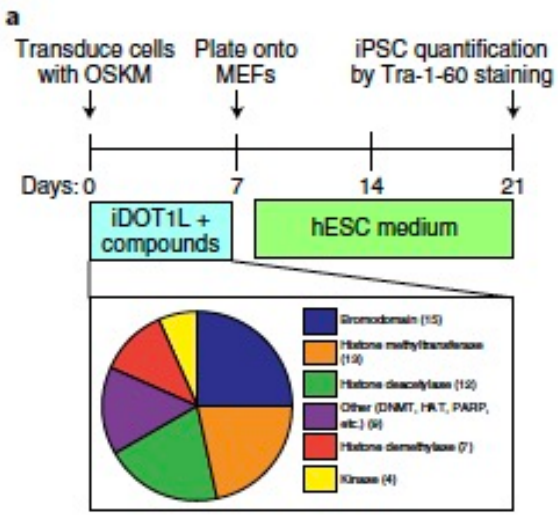
ARTICLES

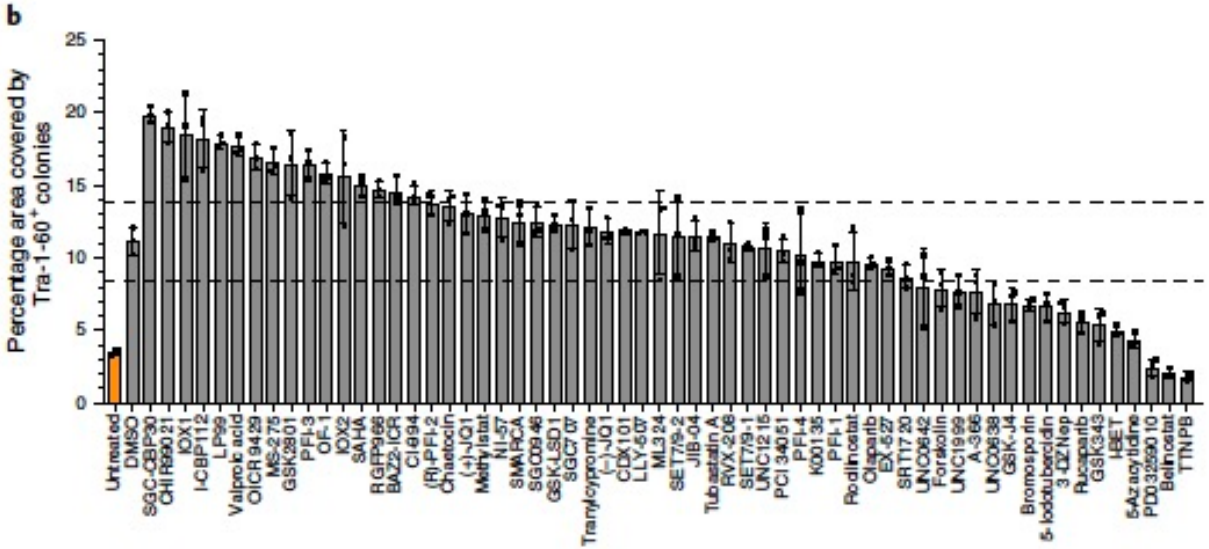
https://doi.org/10.1038/s41589-019-0264-z

Bromodomain inhibition of the coactivators CBP/EP300 facilitate cellular reprogramming

Ayyub Ebrahimi[1,2,6,7], Kenan Sevinç[1,7], Gülben Gürhan Sevinç[1], Adam P. Cribbs[3], Martin Philpott[3], Fırat Uyulur[1], Tunç Morova[1], James E. Dunford[3], Sencer Göklemez[1], Şule Arı[2], Udo Oppermann[3,4,5]* and Tamer T. Önder[1]*







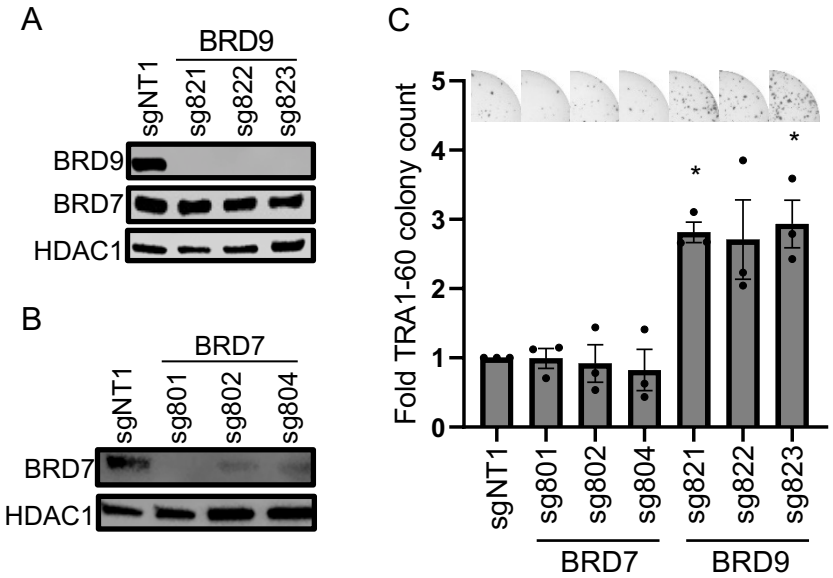
Ebrahimi and Sevinc et al. *Nat Chem Biol*. 2019

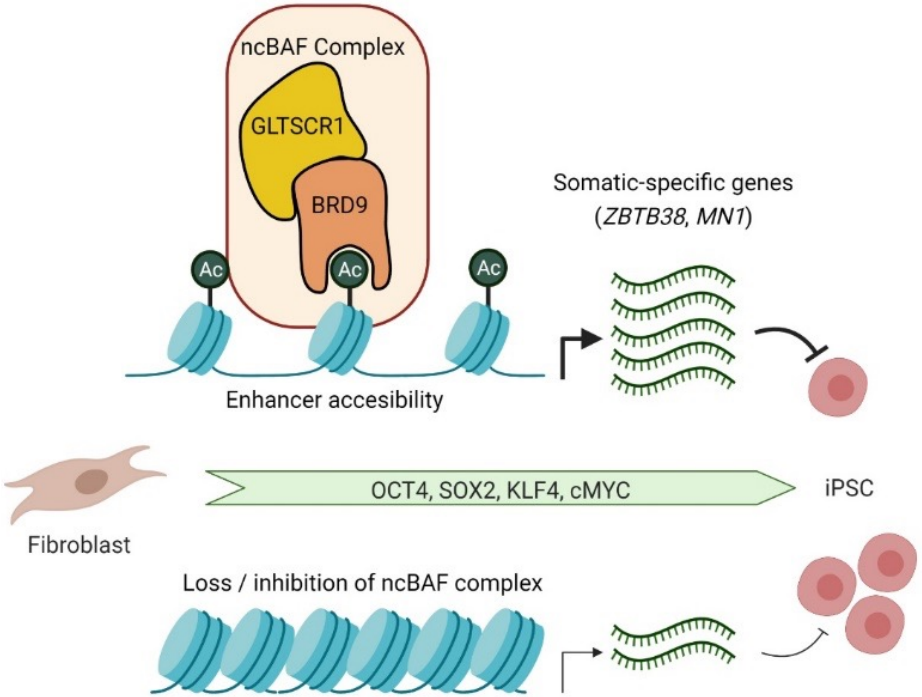
New Results

BRD9-containing non-canonical BAF complexes safeguard cell identity and prevent reprogramming

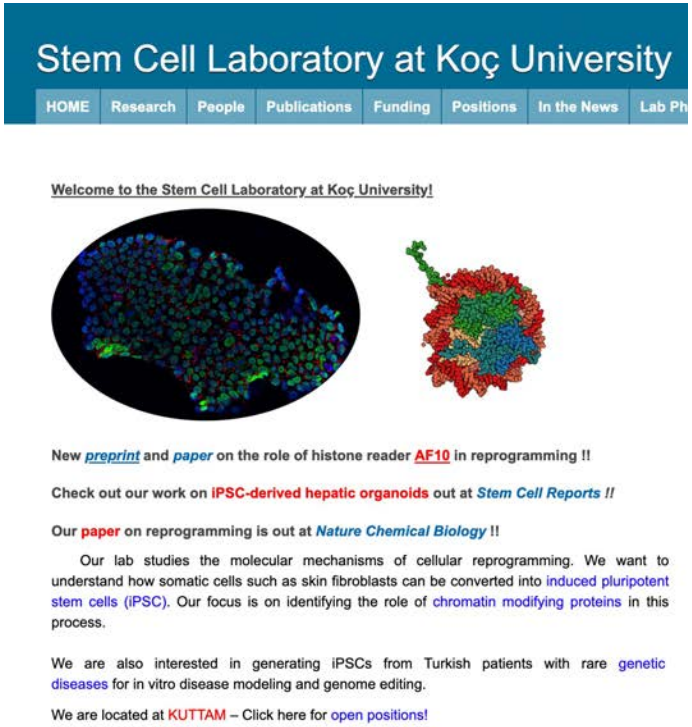
Kenan Sevinç, Gülben Gürhan Sevinç, Ayşe Derya Cavga, Martin Philpott, Simge Kelekçi, Hazal Can, Adam P. Cribbs, Enes Sefa Ayar, Dilşad H. Arabacı, James E. Dunford, Ata B. Demir, Logan H. Sigua, Jun Qi, Udo Oppermann, Tamer T. Onder

doi: https://doi.org/10.1101/2021.05.27.445940





Sevinc et al. In revision 2022



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Udo Oppermann

Martin Philpott

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