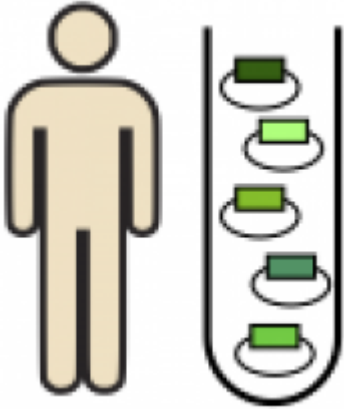


Next-generation shRNA platform

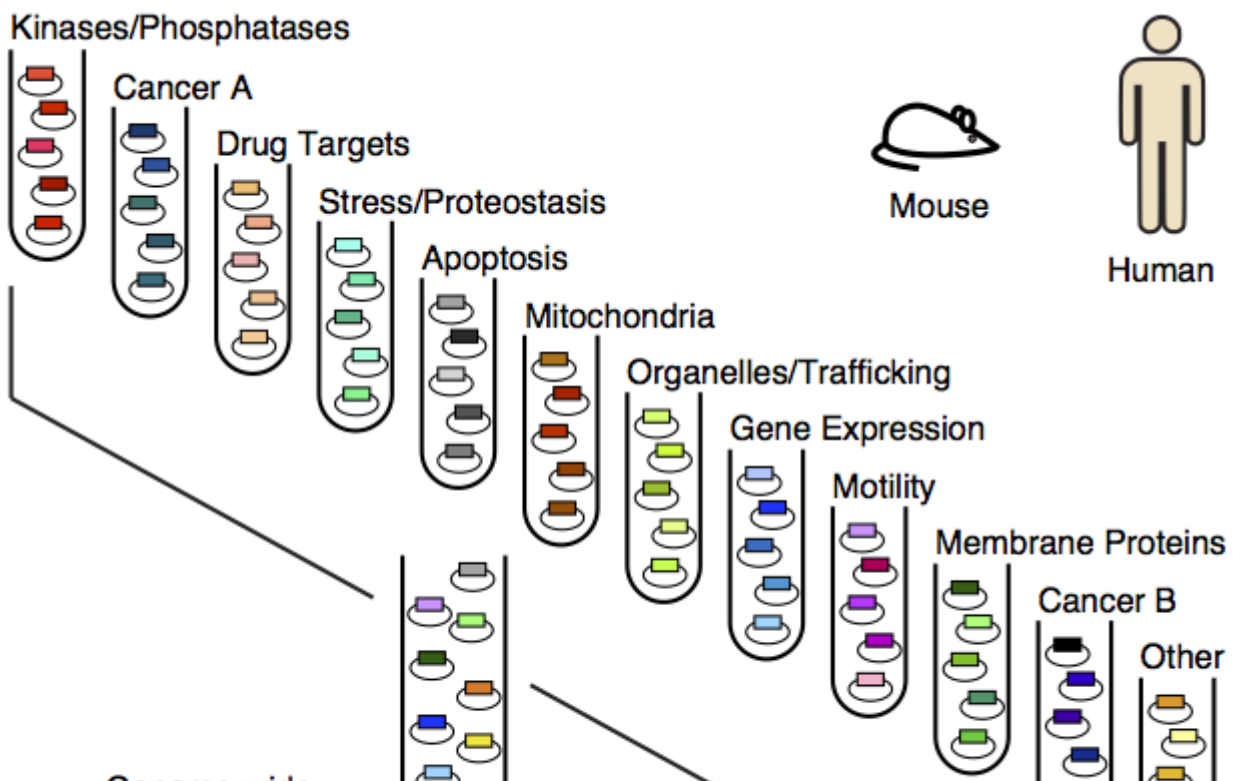
Jun 15, 2015



Genetic screens in mammalian cells provide important clues to the function of genes in normal and disease contexts. We have developed several complementary technology platforms to conduct such screens.

Our recently developed CRISPRi/CRISPRa [1] approach has been transformative, but more traditional shRNA-based screens still have advantages for some applications. Our quantitative framework to conduct and analyze screens using ultracomplex pooled libraries [2] enables us to mostly overcome problems commonly associated with shRNA-based screens, such as off-target effects.

For our next-generation shRNA platform, published online today [3], we optimized several parameters of shRNA library design. We show that this platform has similar potency to our first-generation CRISPRi screening platform, and yields complementary results.



Our next-generation shRNA platform

Kampmann M*, Horlbeck MA, Chen Y, Tsai JC, Bassik MC, Gilbert LA, Villalta JE, Kwon SC, Chang H, Kim VN, Weissman JS* (2015). Next-generation libraries for robust RNA interference-based genome-wide screens [3]. *Proceedings of the National Academy of Sciences* published ahead of print June 15, 2015, doi:10.1073/pnas.1508821112.

*Corresponding authors

Source URL: <https://kampmannlab.ucsf.edu/news/next-generation-shrna-platform>

Links

[1] <http://www.ncbi.nlm.nih.gov/pubmed/25307932>

[2] <http://www.ncbi.nlm.nih.gov/pubmed/23739767>

[3] <http://www.pnas.org/content/early/2015/06/09/1508821112.abstract>