

Giacomo Cavalli studied Biology at the University of Parma. In 1991, he moved to Zürich at the University of Science and Technology (ETH) to do his PhD, where he worked on chromatin structure and function in yeast with Fritz Thoma and Theo Koller. In 1995, he started a postdoc in the laboratory of Prof. Renato Paro at the University of Heidelberg. In December 1998, he moved to IGH in Montpellier, France, to set up a junior lab and stayed at IGH ever since. Giacomo Cavalli made seminal contributions in the field of epigenetics. Using the fruit fly *Drosophila melanogaster*, he discovered that epigenetic inheritance of new phenotypes can occur independently on changes of the DNA sequence. His lab also discovered that the three-dimensional organisation of chromosomes in the cell nucleus is a heritable trait that plays an important gene regulatory role. The Cavalli lab identified 3D structural chromosomal domains dubbed Topologically Associating Domains or TADs. Finally, the Cavalli lab has shown that cancer can be initiated by purely epigenetic mechanisms, as a consequence of a transient depletion of Polycomb components and in the absence of driver DNA mutations. Giacomo Cavalli has published over 140 papers, cited over 22,000 times. He received numerous awards, including an EMBO membership, the CNRS silver medal, the Allianz Foundation price, the Grand Prix 2020 of the Fondation pour la Recherche Médicale and three advanced investigator ERC grants. In 2022, he was named member of the French Academy of Sciences and he is an ISI Clarivate Highly Cited Researcher. He was director of the IGH Genome Dynamics department from 2007 to 2010 and IGH director from 2011 to 2014. He organized major international conferences and is appointed as members of several Institute- and Journal editorial boards.

145 publications by June 2024, H-index 67. Google scholar metrics: see link <http://scholar.google.com/citations?user=5oWMD9EAAA&hl=en>

Selected publications

- 1) Parreno, V*, Loubiere, V*, Schuettengruber, B., Fritsch, L., Rawal, C.C., Erokhin, M., Györfy, B., Normanno, D., Di Stefano, M., Moreaux, J., Butova, N., Chiolo, I, Chetverina, D., Martinez, A-M#, and **Cavalli, G**#. (2024). Transient loss of Polycomb components induces an epigenetic cancer fate. **Nature** 629, 688-696. <https://doi.org/10.1038/s41586-024-07328-w>.
- 2) Szabo, Q., Donjon, A., Jerkovic, I., Papadopoulos, G.L., Cheutin, T., Bonev, B., Nora, E., Bruneau, B.G., Bantignies, F., and **Cavalli, G**. (2020). Regulation of single-cell genome organization into TADs and chromatin nanodomains. **Nature Genetics** <https://doi.org/10.1038/s41588-020-00716-8>.
- 3) **Cavalli, G*** and Heard, E.* (2019) Advances in epigenetics link genetics to the environment and disease. **Nature**, 571, 489-499 doi: 10.1038/s41586-019-1411-0
- 4) Bonev, B., Mendelson Cohen, N., Szabo, Q., Fritsch, L., Papadopoulos, G., Lubling, Y., Xu, X., Lv, X., Hugnot, J.-P., Tanay, A., and **Cavalli, G**. (2017). Multi-scale 3D genome rewiring during mouse neural development. **Cell** 171, 557-572.e24.
- 5) Schuettengruber, B., Bourbon, H., Di Croce, L., and **Cavalli, G**. (2017). Genome Regulation by Polycomb and Trithorax: 70 years and counting. **Cell** 171, 34-57.
- 6) Ciabrelli, F., Comoglio, F. Fellous, S., Bonev, B., Ninova, M., Szabo, Q., Xuéreb, A., Klopp, C., Aravin, A. Paro, R., Bantignies, F., and **Cavalli, G** (2017). Stable Polycomb-dependent transgenerational inheritance of chromatin states in *Drosophila*. **Nature Genetics** 49, 876-886, doi:10.1038/ng.3848
- 7) Loubiere, V., Delest, A., Thoma, A., Bonev, B., Schuettengruber, B., Sati, S., Martinez, AM., and **Cavalli, G**. (2016) Coordinate redeployment of PRC1 proteins suppresses tumor formation during *Drosophila* development. **Nature Genetics** 48, 1436-1442, doi:10.1038/ng.3671
- 8) Sexton, T., and **Cavalli, G**. (2015). The role of chromosome domains in shaping the functional genome. **Cell**, 160, 1049-1059
- 9) Sexton, T., Yaffe, E., Kenigsberg, E., Bantignies, F., Leblanc, B., Hoichman, M., Parrinello, H., Tanay, A., and **Cavalli, G**. (2012). Three-dimensional folding and functional organization principles of the *Drosophila* genome. **Cell** 148, 458-472

- 10) Bantignies, F., Roure, V., Comet, I., Leblanc, B., Schuettengruber, B., Bonnet, J., Tixier, V., Mas, A., and **Cavalli, G. (2011)**. Polycomb-dependent regulatory contacts between distant Hox loci in *Drosophila*. **Cell** 144, 214-26.
- 11) Martinez, AM., Schuettengruber, B., Sakr, S., Janic, A., Gonzalez, C., and **Cavalli, G. (2009)**. Polyhomeotic has a tumor suppressor activity mediated by repression of Notch signaling. **Nature Genetics** 41:1076-82.
- 12) Grimaud, C., Bantignies, F., Pal-Bhadra, M., Ghana, P., Bhadra, U., and **Cavalli, G. (2006)**. RNAi Components Are Required for Nuclear Clustering of Polycomb Group Response Elements. **Cell** 124, 957-971
- 13) Déjardin, J., Rappailles, A., Cuvier, O., Grimaud, C., Decoville, M., Locker, D., and **Cavalli, G. (2005)**. Recruitment of Drosophila Polycomb Group proteins to chromatin by DSP1. **Nature**, 434, 533-538; doi:10.1038/nature03386.
- 14) **Cavalli, G.**, and Paro, R. (1999). Epigenetic inheritance of active chromatin after removal of the main transactivator. **Science** 286, 955-958
- 15) **Cavalli, G.**, and Paro, R. (1998). The Drosophila *Fab-7* chromosomal element conveys epigenetic inheritance during mitosis and meiosis. **Cell** 93, 505-518