

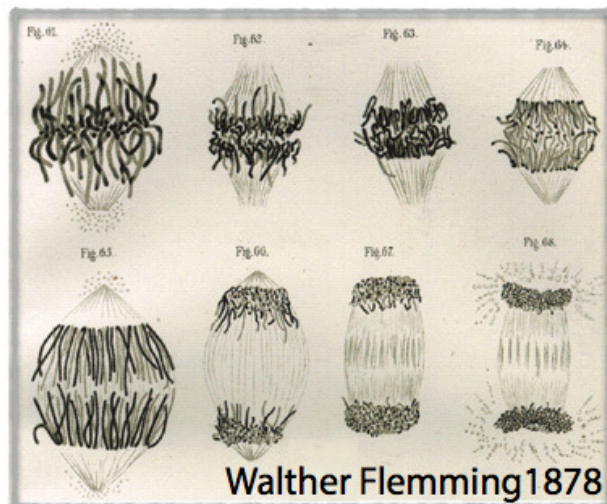
How one chromosome makes two

David Sherratt, Dept Biochemistry, University of Oxford, UK

Chromosomes were first observed and the process of their segregation in mitosis described by Walther Flemming, working in Kiel, Germany, in 1878, but it was another 25 years before their role in inheritance was proposed.

The coordinated processes of chromosome replication, unlinking and subsequent chromosome segregation underlie the life process. Defects in these processes lead to genetic diseases and a multitude of pathologies in humans, while interfering with these processes is the basis of the action of many antibiotics and anti-cancer agents.

My laboratory studies the molecular mechanisms of the action of the molecular machines that act in these processes in the bacterium *E. coli* by using a combination of *in vivo* and *in vitro* biochemistry, quantitative single-molecule imaging and genetics. The presentation will focus on the importance of eliminating ensemble averaging wherever possible and in the challenges of reconciling *in vitro* and *in vivo* experimental data and in building them into a mechanistic framework.



Sherratt lab; the present

