François Rochat
University of Fribourg

To what extend is modeling an alternative to experimentation?

A discussion about some advantages and disadvantages of biological models.

Once we care for the advancement of biology, we tend to think of experimentation, be it to test a set of hypotheses, or to collect scientific data. Yet we may also think of finding other ways to do that, and biological modeling is one of them. Biological models are tools helping us to figure out, on the one hand how we can think of the phenomena we are studying, on the other hand, how to interrogate them. Furthermore, scientific modeling in general helps researchers to become aware of the content of their premises as well as to pay attention to unnoticed cognitive bias they may hold.

A few illustrations of those advantages of scientific modeling will be given, and the limits of biological modeling will be examined. The question of the extent to which experimentation and modeling can actually be complementary will be raised through a case study.