

miwelt: the principles of microbial growth and division

K. Kovar¹, J. Dürr², M. Raabe³, M. Ottinger^{1,4}, M. Straumann^{1,5}, M. Lussi Bell⁶, C. Hyde-Simon⁶, and V. Looser^{1,7}

¹ daspool, Wädenswil, Switzerland

e-mail: karin.kovar@daspool.ch

² freelance children's books illustrator

³ independent journalist

⁴ currently at ThermoFischer

⁵ currently at Molecular Partners AG

⁶ Zürich University of Applied Sciences ZHAW, Wädenswil, Switzerland

⁷ University of Chemical Technology Prague UCT, Czech Republic

A quantitative understanding of biomass growth is fundamental to biotechnological manufacturing, and we explain it here in an easy to understand way:

Cellular division is demonstrated through the everyday analogy of converting a child's room into two identically equipped rooms. Two cells, which have divided, are identical since they both need the same organelles to survive. 'Exponential growth' of microbial cultures implies that a single mother cell divides into two new daughter cells, these two cells into four, four into eight etc. Such a system accelerates due to continuous doubling, so an increase in biomass occurs more and more rapidly over time.

miwelt was initiated as a science communication project under the Agora scheme of the Swiss National Science Foundation (SNSF, No. 151517). Scientists, artists and journalists have jointly developed illustrated materials, thematic excursions, and laboratory experiments about microbial biotechnology for children from the age of 7 to 11.

As part of the miwelt project, scientists have been encouraged to explain both the content of and methods used in their everyday work to children and their families as well as to teachers who have only a basic grounding in science. For this purpose, they are aided by illustrations and analogies with everyday life, produced by a professional illustrator and journalists engaged in dialogue with the scientists.

You are invited to join the miwelt endeavour, For more information visit: www.miwelt.net