

## The similia principle: results obtained in a cellular model system.

Fred Wiegant<sup>1</sup>, Roeland Van Wijk

PMID: 20129172

DOI: [10.1016/j.homp.2009.10.002](https://doi.org/10.1016/j.homp.2009.10.002)

### Abstract

This paper describes the results of a research program focused on the beneficial effect of low dose stress conditions that were applied according to the similia principle to cells previously disturbed by more severe stress conditions. In first instance, we discuss criteria for research on the similia principle at the cellular level. Then, the homologous (,isopathic') approach is reviewed, in which the initial (high dose) stress used to disturb cellular physiology and the subsequent (low dose) stress are identical. Beneficial effects of low dose stress are described in terms of increased cellular survival capacity and at the molecular level as an increase in the synthesis of heat shock proteins (hsps). Both phenomena reflect a stimulation of the endogenous cellular self-recovery capacity. Low dose stress conditions applied in a homologous approach stimulate the synthesis of hsps and enhance survival in comparison with stressed cells that were incubated in the absence of low dose stress conditions. Thirdly, the specificity of the low dose stress condition is described where the initial (high dose) stress is different in nature from the subsequently applied (low dose) stress; the heterologous or ,heteropathic' approach. The results support the similia principle at the cellular level and add to understanding of how low dose stress conditions influence the regulatory processes underlying self-recovery. In addition, the phenomenon of ,symptom aggravation' which is also observed at the cellular level, is discussed in the context of self-recovery. Finally, the difference in efficiency between the homologous and the heterologous approach is discussed; a perspective is indicated for further research; and the relationship between studies on the similia principle and the recently introduced concept of ,postconditioning hormesis' is emphasized.