**Towards robust evidence in preclinical development pathways**

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Preclinical research aims to generate evidence for safety/toxicity and efficacy of potential treatments. Its ultimate goal is inform the decision to engage in a clinical trial. Whereas safety and toxicity are strongly regulated, efficacy is determined by a series of experiments that are not fixed a-priori. Such experiments frequently start out in an exploratory mode to investigate mechanistic underpinnings and explore putative effect sizes. Ideally, these are followed by confirmatory studies to substantiate effects and inform further experiments. Exploratory and confirmatory studies have different requirements regarding validity and reliability. In this talk, I will outline different strategies to adjust these requirements with the goal to increase efficiency and predictive power of preclinical experiments. For this, I will draw on a consultation framework that features robustness of evidence as central element. This framework is already employed in a large scale confirmatory preclinical project and at the Berlin Institute of Health. I will give concrete examples from these projects and map out potential adjustments in academic preclinical research towards successful translation.