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## Statistical learning for complex data to enable precision medicine strategies

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# Statistical learning for complex data to enable precision medicine strategies

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1. Integration of statistical learning and pharmacometric modeling is vital for identifying molecular biomarkers for tumor growth inhibition from high-dimensional omics data. *This thesis.*
2. Longitudinal measurements in high-dimensional metabolomics data allow for detection of biomarkers patterns for disease progression and drug response. *This thesis.*
3. Collateral effects of antibiotic resistance can be detected in population surveillance data. *This thesis.*
4. Copulas can be used to share realistic patient covariate sets without sharing observed patient data. *This thesis.*
5. The process of building models based on previous knowledge is inherently Bayesian. *Adapted from Jeffrey S. Barrett, et al., 2008.*
6. The relative scarcity of big data limits the utility of artificial intelligence techniques in healthcare. *Adapted from Volovici et al., 2022.*
7. There are high expectations for artificial intelligence, but due to the wide variety of research questions, statistical methods will continue to be essential for progress in a world of data. *Adapted from Reid, 2018.*
8. The persistence of poor statistical methods results partly from rewarding discoveries, even when false, leading to the natural selection of bad science. *Adapted from Smaldino & McElreath, 2016.*
9. Academia will only thrive if we focus less on competition and prestige and more on collaboration and well-being.
10. Presenting complex work in simple ways facilitates understanding and scientific discussion.
11. Creating a tolerant academic society requires being intolerant of intolerance. *Adapted from Popper.*
12. Dancing is a vastly underrated networking skill.