A U S H A N G

FREIE UNIVERSITÄT BERLIN
Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

D I S P U T A T I O N

Dienstag, 29. Mai 2018, 14.00 Uhr

Ort: T9-006, Takustraße 9, Informatik, 14195 Berlin

Disputation über die Doktorarbeit von

Herrn Sven-Leon Kuchenbecker

Thema der Dissertation:
Analysis of Antigen Receptor Repertoires Captured by High Throughput Sequencing

Thema der Disputation:
Unraveling the driving mechanisms of diversity generation in antigen receptor genes

Die Arbeit wurde unter der Betreuung von **Prof. Dr. K. Reinert** durchgeführt.

Abstract: The immune system in vertebrate species is generally divided into two main components: the innate and the adaptive immune system. The latter is unique in vertebrates and comprises cells that are able to detect various molecules produced by pathogens, primarily proteins, through a surface protein called the antigen receptor. An individual features millions of such cells expressing distinct antigen receptors, i.e. cells specific for distinct targets.

The structure of the antigen receptor is not entirely evolutionarily selected for, but instead in part randomly generated upon cell differentiation. The underlying mechanism is a somatic recombination process altering the genome at the locations coding for the antigen receptor, thus breaking with the general principle of each cell holding an identical copy of an individual's genome.

With an increase in the development of therapies targeting the bodies own defense mechanism, e.g. novel vaccines and cancer therapeutics, deepening our understanding of adaptive immune mechanisms becomes increasingly relevant. The disputation talk will cover the principle of the somatic recombination process with a focus on a mathematical model to statistically infer a probability distribution explaining the mechanisms governing that process.

Die Disputation besteht aus dem o. g. Vortrag, danach der Vorstellung der Dissertation einschließlich jeweils anschließenden Aussprachen.

Interessierte werden hiermit herzlich eingeladen

Der Vorsitzende der Promotionskommission
Prof. Dr. K. Reinert