



## — Impact of checkpoint inhibitor therapies on a patients' immunogenicity status

### Quest Lover

Are you curious about cancer immunotherapy everyone in the oncology world is talking about? Do you love using and advancing your skills to analyze complex data and shedding light on current research questions?

Apply until **Nov 30, 2020** / Pitch on **Dec 4, 2020**

### Question to be solved

What is the impact of former CPI-treatment on patients participating in Roche Immunotherapy trials?

### General Background

Checkpoint inhibitor (CPI)-based immunotherapies that target the CTLA4 or PD1/PD-L1 pathway have achieved impressive success in the treatment of different cancer types. The number of patients with cancer who receive immune checkpoint-based therapies is rapidly increasing following a growing number of approved indications. Testing novel cancer immunotherapies in early clinical Phase 1 studies face the situation that most of the patients today have been exposed to those CPI-based immunotherapies. Understanding the impact of previous exposure to CPI-based immunotherapies is important to recruit the “right” patients for testing novel cancer immunotherapies in early clinical Phase 1 studies. Little is known about the impact of past CPI-treatment on a patient’s response to novel cancer immunotherapies. Clinical as well as biomarker data of enrolled patients from early clinical Phase 1 studies have been integrated into a large virtual cohort to identify features of those patients with the goal to improve the current patient selection strategies

### Data Types & Technologies

- Clinical data, Omics data such as RNASeq and flow cytometry
- Data transformation/encoding & normalization
- Machine learning techniques (e.g. multi class prediction)

### Supporting Material or Links

- Havel, J., Chowell, D., Chan, T. The evolving landscape of biomarkers for checkpoint inhibitor immunotherapy. Nature Reviews Cancer 2019
- Robert, C. A decade of immune-checkpoint inhibitors in cancer therapy. Nature Communications 2020

### Needed Skills

- Statistics
- Programming skills (e.g. R and/or Python)
- Machine learning (e.g. multi class prediction)
- Interest in biological and clinical data

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## Mentor

**Dr. Franziska Braun**  
Senior Data Scientist

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## Form of Cooperation

Preferred scale: 6-12 months full-time (flexible models are also possible)

Possible format: Internship

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## How to present your Idea

Show us how you would approach the problem. You can prepare your idea proposal in 3-5 slides, any other idea/format to share your proposal with us is also welcome. We do not expect a bullet-proof solution to the problem.

Specific skills we will check during the barcamp:

- Programming skills (e.g. R and/or Python)
  - Data transformation/encoding & normalization
  - Machine learning techniques
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