

# curAHack

## 1<sup>st</sup> curATime Hackathon: Innovate the future of Life Sciences and Medicine

••• 08.-09.04.2024 @ Gutenberg Digital Hub Mainz •••

••• [Please register here](#) •••



### Challenges

→ research question from  
curATime projects



### Interdisciplinary

→ learn from and with other  
disciplines  
→ creative ways to solve  
research questions



### Format

→ work in teams  
→ each time has a mentor  
→ award for best final pitch



### Innovative Solutions

→ e.g. concept, software,  
dataset



### Open Event

→ open to all disciplines and  
career levels (incl. students)  
→ open to public



### Feed back into projects

→ new collaborations  
→ broaden your skill set and  
network

[curATime](#) – an Excellence Initiative funded by the BMBF addressing  
atherosclerosis and cardiovascular research

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## ... Overview Challenges ...

### Challenge 1: Code Accessibility through GUI

presented by Aída Romano Martínez ([curAlheart](#))

[curAlheart](#) generates large sets of codes for application in echocardiography, which are expected to be used by clinicians who, however, may lack coding expertise. A graphical user interface (GUI) would significantly simplify code implementation.

In this challenge you can team up and design a GUI tool that allows to understand the underlying code and their respective results.

### Challenge 2: RNASeq

presented by David Weber ([curATarget](#))

Frequent updates of gene annotations complicate the use of preprocessed RNAseq expression data: existing methods rely on specific gene models, requiring repeated analysis and handling of large raw sequencing files for comparability. An annotation-free pre-processing step maintaining quantitative information in a more compact format has the potential to simplify the process for frequent occurring reanalysis.

In this challenge you can team up and design an annotation-free analysis tool allowing for efficient expression analysis from pre-processed data.

### Challenge 3: Target Sequence for RNA delivery

presented by Johnny Kim & Boris Strilic ([curAlIntervent](#))

Treatment of atherosclerosis via nanoparticle-formulated mRNA requires the identification of sequences enabling targeted delivery to endothelial cells within atherosclerotic lesions. Successful targeting of the endothelium has also the potential to form the basis for treatment of various diseases, including infectious diseases, diabetes, and cancer.

In this challenge you can team up and identify target sequences for mRNA delivery to endothelial cells within atherosclerotic lesions.