

# BioTISCH: the interactive molecular biology workbench

Florian Echtler, Maximilian Häussler, Gudrun Klinker  
 {echtler,klinker}@in.tum.de, maximilian.haussler@manchester.ac.uk

## Motivation

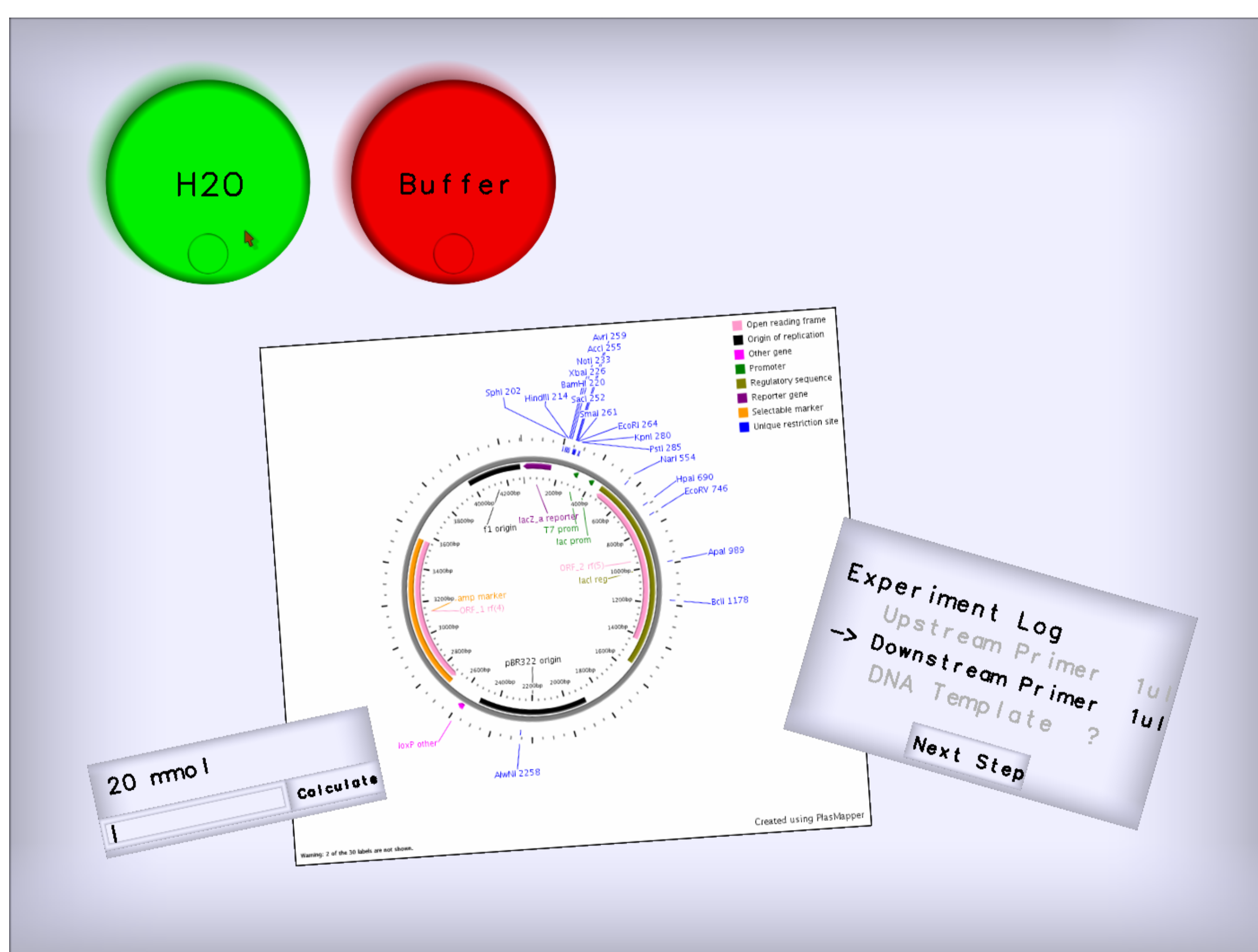


In molecular biology, scientists often need to execute strictly defined sequences of operations. These operations mostly consist of mixing specific amounts of reagents.

Typically, a workbench in the wetlab is a glass surface cluttered with a variety of tools, reagent containers, sample tubes and particularly notes of all kinds and sizes.

We present BioTISCH, an interactive surface which is designed to help scientists in the wetlab. Access to information such as experiment logs, lab documentation and plasmid DNA charts is provided as well as tools for common operations such as unit conversions. As a result, clutter on the workbench is reduced while maintaining sterility (a critical issue in molecular biology).

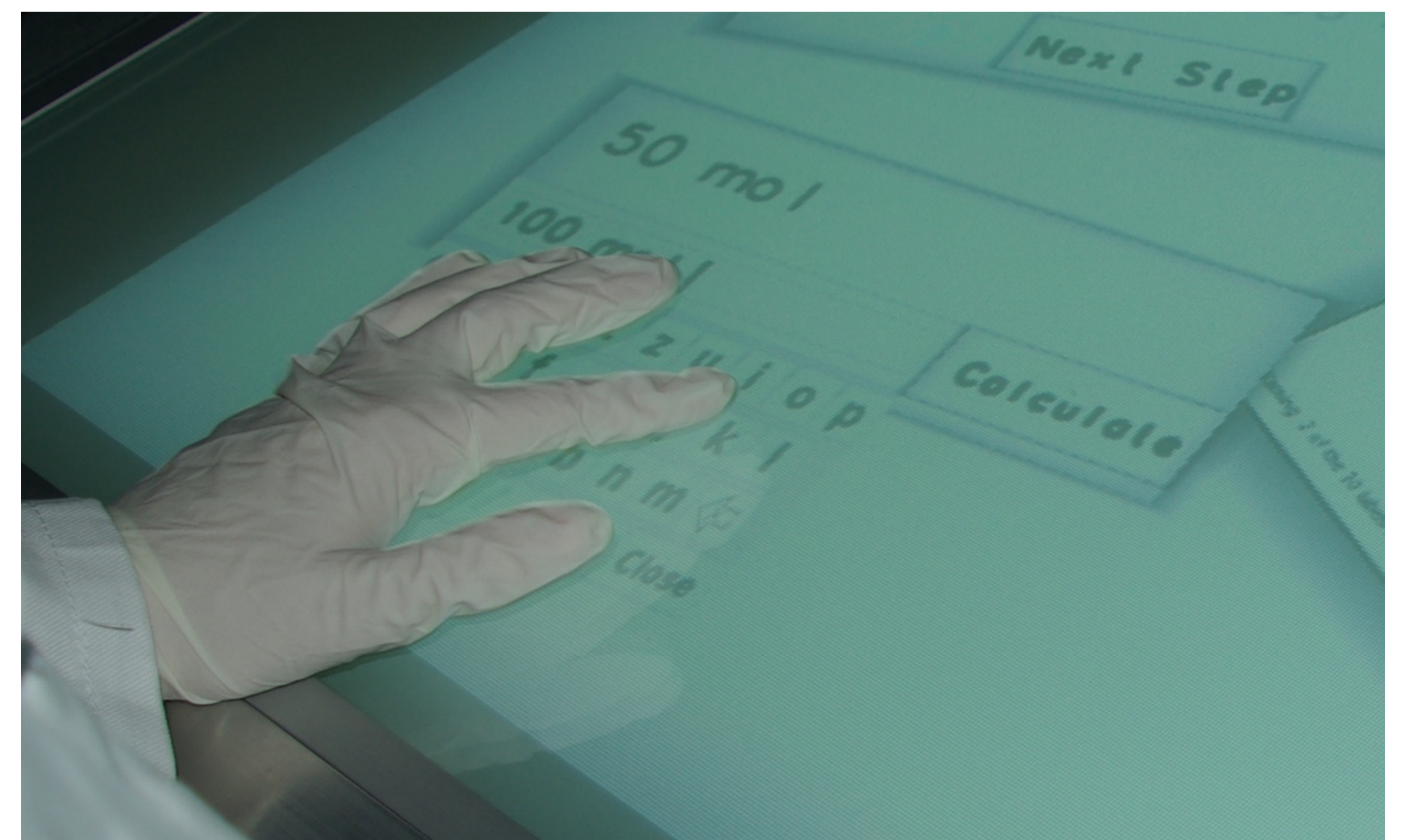
## BioTISCH User Interface



- UI elements clockwise from top left:
- reagent sensors (dedicated table space for reagent containers)
  - experiment log viewer (showing next reagent to add)
  - plasmid browser showing plasmid DNA ring with annotations
  - molarity/concentration calculator

All UI elements can be scaled and arranged by the user.

## Outlook



Next steps:

- evaluate system with other experienced molecular biologists
- iteratively refine BioTISCH design
- install system in real wetlab

Future extensions:

- add directly controllable tools, e.g. motorized pipettes
- connect to lab inventory system via barcodes
- *your idea here!*