

Fidabio Software Note # 7

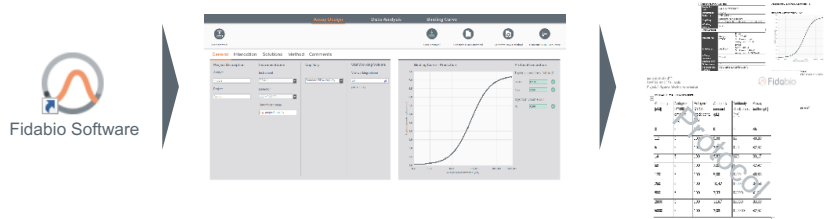
## Workflow Integration with Opentrons

Version 14092020: Morten Enghave Pedersen, Industrial PhD, Fida Biosystems ApS

The Fida 1 is a robust platform based on a versatile and intuitive technology. To enable users to take full advantage of the benefits of the FIDA technology and ensure that they can focus all their resources on getting the most out of the data generated, Fidabio is continuously working on streamlining workflows and developing enhancements of the Fidabio Software Suite for assay simulation & design, instrument control, analysis and reporting.

This Tech Note describes how users may take advantage of the built-in Opentrons integration, which enables users to export titration series etc. generated by the assay simulation and design module directly into an Opentrons robot.

Launch the Fidabio Software Suite to generate a protocol for your experiment



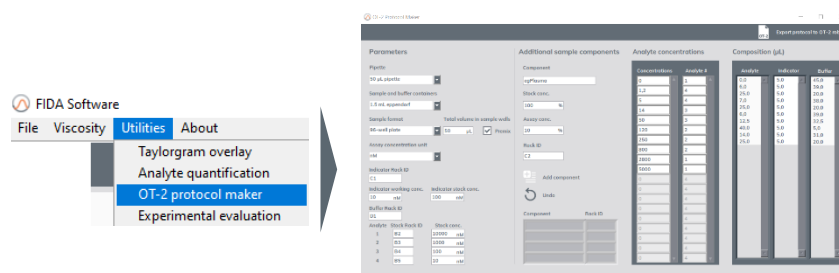
Use the Assay Design module in the FIDA software for exporting the experimental protocol.

Identify the titration schemes in the protocol

Locate analyte concentration series, stocks, and indicator concentrations from the titration schemes on p.2-3 in the generated protocol (rows highlighted in grey).

| Antibody [nM] | Antigen-DY490 amount [µL] | Antigen-DY490 stock conc. [nM] | Antibody amount [µL] | Antibody stock conc. [nM] | Assay buffer [µL] |
|---------------|---------------------------|--------------------------------|----------------------|---------------------------|-------------------|
| 0             | 5                         | 100                            | 0                    | 0                         | 45                |
| 1,2           | 5                         | 100                            | 5,00                 | 12                        | 40,83             |
| 5             | 5                         | 100                            | 2,08                 | 120                       | 42,92             |
| 14            | 5                         | 100                            | 5,83                 | 120                       | 39,17             |
| 50            | 5                         | 100                            | 2,08                 | 1200                      | 42,92             |
| 120           | 5                         | 100                            | 5,00                 | 1200                      | 40,83             |
| 250           | 5                         | 100                            | 10,42                | 1200                      | 34,58             |
| 800           | 5                         | 100                            | 3,33                 | 12000                     | 41,67             |
| 2800          | 5                         | 100                            | 11,67                | 12000                     | 33,33             |
| 5000          | 5                         | 100                            | 2,08                 | 120000                    | 42,92             |

Launch the pipetting robot protocol maker



Launch the OT-2 protocol maker from the Utilities menu.

### Define robot parameters

Define the robot parameters such as pipetting setup, sample format (96-well plate or vials w/inserts), mixing strategy, and deck location of stock solutions.

| Analyte | Stock Rack ID | Stock conc. |
|---------|---------------|-------------|
| 1       | D2            | 10000 nM    |
| 2       | D3            | 1000 nM     |
| 3       | D4            | 100 nM      |
| 4       | D5            | 10 nM       |

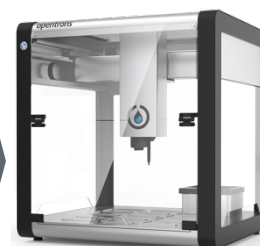
### Define titration series

| Antibody [nM] | Antigen-DY490 amount [µL] | Antigen-DY490 stock conc. [nM] | Antibody amount [µL] | Antibody stock conc. [nM] | Assay buffer [µL] |
|---------------|---------------------------|--------------------------------|----------------------|---------------------------|-------------------|
| 0             | 5                         | 100                            | 0                    | 0                         | 45                |
| 1.2           | 5                         | 100                            | 5.00                 | 12                        | 40.83             |
| 5             | 5                         | 100                            | 2.08                 | 120                       | 42.92             |
| 14            | 5                         | 100                            | 5.83                 | 120                       | 39.17             |
| 50            | 5                         | 100                            | 2.08                 | 1200                      | 42.92             |
| 120           | 5                         | 100                            | 5.00                 | 1200                      | 40.83             |
| 250           | 5                         | 100                            | 10.42                | 1200                      | 34.58             |
| 800           | 5                         | 100                            | 3.33                 | 12000                     | 41.67             |
| 2800          | 5                         | 100                            | 11.67                | 12000                     | 33.33             |
| 5000          | 5                         | 100                            | 2.08                 | 120000                    | 42.92             |

Transfer titration series parameters from the FIDA 1 protocol (i.e. analyte conc. series and indicator conc.) into the OT-2 protocol maker.

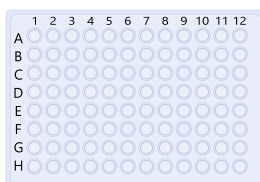
Export and save the OT-2 protocol (.py-format).

### Start OT-2 pipetting robot



Launch the Opentrons software and upload the generated Fidabio OT-2 protocol in the protocol pane. Next, follow the instructions given by the robot (i.e. location of samples, buffers, pipette tips etc.).

### Load prepared samples into your FIDA1



Load the OT-2 prepared samples (96 well plates or vials) onto your FIDA 1 and start analyzing. In a few minutes, you will have your first data points.