Bring up report for Autocyplex.

# Orientation/System Overview

# Basic hardware Testing

## Illumination Profile

## 2.2 Resolution

## 2.3 Reflection

## 2.4 Invisislip vs water imaging comparison

## 2.5 Planar focal plane flatness

## 2.6 chromatic aberration

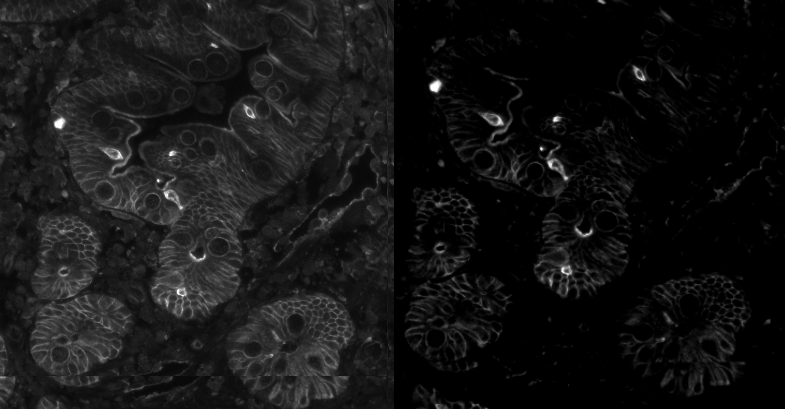
# Software

## Background Subtraction

Looking at line profile over a Na-K-ATPase stain line, we can see the background subtraction increased peak signal to bckgnd ratio from 1.32 to 2.25.

A screenshot of a computer

Description automatically generated



## Auto Focus

### 6-12-23 change

Up until now I had been running an autofocus program which entailed taking images in a z stack at every tile and finding the max and centering my acquisition z stack focus map on that. It hit me that this can be simplified and hastened. During the stain phase, I can look through the previous cycles images and recenter the best focus plane for each tile and then update the focus map. This is done during a downtime activity so net time cost on the system is zero. [Presentation\Previous Cycle, Star-Dist Autofocus.pptx](Presentation/Previous%20Cycle,%20Star-Dist%20Autofocus.pptx)

# Issues

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Problem ID** | **Problem Description** | **Solution** | **Date** | **Person** | **Status** |
| I1 | Core capture got stuck in random spot. No good leads on why. Previously driver in mm had crashed. Not the case here. I restarted image acquisition and it had no issue. For reference, it had captured bleached cycle 1, stain/bleach for cycle 2 and stalled at stained for cycle 3. | No good proposed solution. Idea could be to see if core capture is taking too long and literally asking it to take it again. | 11/29/23 | MA | No resolution |
| F1 | Pressure source loud and unable to sustain pressure >600mBar. | Contacted Elveflow to get exchange. Most likely pump is failing. | 11/28/23 | MA | Got new better pump more suited for application. Resolved. |
| F2 | When asking to stop flow, a slow flow still exists. Its very minimal. Seems to make pbs hit the chamber in about 1 hour. | I ask the reg to bring the fluid flow to 0. I need to ask it to bring the pressure to 0 instead. |  |  |  |
| F3 | Only delivered cycle 1 stain in multiplex run. Nothing else was seemingly executed | No idea yet | 1/31/2024 | MA |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

# Solution Testing

## F1

Pump is mega loud. Record 85db on phone and documents say should be 53db. Performance was not hindered until recently. As of now, it is only able to sustain 600mBar pressure. Solution is to do exchange with Elveflow for new unit as this one is clearly failing. This solution was correct.

## I1

Really hard to say here. It is beyond my abilities to resolve an issue with the core capture stalling out if it is due to architecture. Simply restarting the program made it work though. A possible solution could be to make the capture function wait a bit. If it exceeds a certain time frame, it simply asks it to do it again. Python IDE gave no errors back in this case. It just didn’t proceed on in the code.

Other possible solutions could be to alternative code to capture image. No need to use mm core capture. I could use python package from photometric to capture as well. Its untested if both forms of capturing can be done at the same time or if mm called ‘dibs’ on the camera.

F2

OB1 showed 0 flow, but 20mBar pressure. I saw a drop form through the device every 5 minutes. That is slow, but significant. I flipped the pressure shutoff valve and it forced the pressure to 0 and the flow ceased. Code needs update to reflect this. \*Note this only semi worked. Having it fully calibrate itself and dictating the flow be -3 instead of 0 seemed to drive it to virtually stop flow.

F3

No idea yet. F2 was implemented and maybe it had unintended consequences.