

Operetta CLS – High Content Facility: 2023 activity report

Michele Lai

1. Laboratory implementation

None. Columbus and Data Center analyses are still not working due to a conflict between the Columbus Client with the UNIPI Datacenter network

2. Hours worked

Operetta CLS in 2023 was used for 623 hours. The large majority of acquisitions (93%) were performed supporting UNIPI researchers, while the 7% derives from collaborations with Scuola Superiore Sant'Anna (PISA), Swansea University and CNR.

3. User statistics

The users of Operetta CLS in 2023 year include roughly 12 research groups from the Department of Translational Medicine, Department of Biology, Department of Chemistry and Department of Experimental Medicine of the University of Pisa accounting for ~93% of the total workload; the remaining ~7% consisted of services for other research institutes (i.e., CNR), educational activities and outreach.

Figure 2. User statistics.

4. Research products

Title	Year	Volume
Gene silencing of endothelial von Willebrand factor reduces the susceptibility of human endothelial cells to SARS-CoV-2 infection	2023	290
Anti-inflammatory reprogramming of microglia cells by metabolic modulators to counteract neurodegeneration; a new role for Ranolazine	2023	13
Inhibiting immunoregulatory amidase NAAA blocks ZIKV maturation in Human Neural Stem Cells	2023	216
Effects of Nutraceuticals on Cisplatin-Induced Cytotoxicity in HEI-OC1 Cells	2023	24
SARS-CoV-2 evolution during persistent infection in a CAR-T recipient shows an escape to both sotrovimab and T-cell responses	2023	3

5. Education and Outreach

We provide service for several educational activities, including practical for MSc courses of Biology, Biotechnology, and Medicine courses. Operetta CLS and High Content Screening are part of training exams in Biotechnology (Bachelor) and presented as a seminar with practical uses during Advanced Microscopy course (Prof. Maria Grazia Di Luca).

We presented our works at the annual Perkin Elmer user meeting in Pozzuoli (Napoli).

6. Issues and objectives

6.1 Performance. We struggled with the air conditioning of the Operetta room. The problem is sorted at the moment but caused several and continuous damages to the instrument. The annual insurance provided a perfect and on-time support. But it is necessary to maintain it if we want to invest in these kinds of analyses in the next future.

6.2 Income vs laboratory costs. Unfortunately, we are far away from auto-sustain the insurance of Operetta (38.000 x year) due to the lack of dedicated personals that support the acquisitions and, also, by the very low price for Unipi users. 1€/well (100€ minimum). We should consider to increase the price for UNIPI users.