

# Operetta CLS – High content confocal screening facility - CISUP laboratory

## 2022 activity report – first semester

**Head of laboratory: Michele Lai, PhD**

- *Dipartimento di Nuove Tecnologie in Medicina e Chirurgia – Università di Pisa, Centro Retrovirus, SS 12, 2, 56125 Pisa*
- *CISUP - Centro per la Integrazione della Strumentazione – Università di Pisa, Lungarno Pacinotti 42/43, 56126 Pisa*

Laboratory web page: <https://cisup.unipi.it/labs/operetta-high-content-imaging/>

### 1. Laboratory implementation

4 PhD students were formed by Perkin Elmer Specialist and by Michele Lai to use Operetta. Every PhD student was specifically formed to help users that need Operetta screenings over time. Every specific requests that span from 3D reconstruction, PreciScan analyses and multiple co-localization screenings are always supervised by Michele Lai.

### 2. Price list

Price list was published on the CISUP website with the instructions for quote requests (table 1).

*Table 1: Price list 2022, VAT excluded.*

Type of experiment	UNIPI	Research institutes	Privates
Price for routine analyses Prices refer to the acquisition of 96 well plates	100 €/h 192 €/acquisition and analyses	200 €/h 384 €/acquisition and analyses	300 €/h 576€/acquisition and analyses

All fares refer to standard/routine applications and include the presence and support of authorized experts. For standard applications to a relevant number of samples or hours, special fares can be applied upon discussion with the Scientific Committee and request of a quote. Prices were decided based on other High-Content screening facilities prices, with the aim to maintain the minimum cost for UNIFI colleagues.

### 3. Hours worked

Table 2 shows a breakdown of the hours worked by Operetta CLS instrument in first semester 2022. This prospect does not include the hours of image analysis performed by the workstation. During 2022, the laboratory worked for 588 hours (maintenance hours excluded).

*Table 2: Operetta CLS usage in 2021*

User type	Hours	%
UNIFI (projects)	297	59.4
UNIFI (single users)	191	32.48
UNIFI education	100	17
External/private	0	0
<i>Total</i>	588	100

### 4. User statistics

The users of the instrument over the year 2022 include 4 research groups from departments of the University di Pisa, in some cases in the framework of collaborations with universities of other cities (Torino, Genova) and Research Institutions (University of Toronto, University of Swansea, School of advanced studies S.Anna).

Operetta CLS facility has a major role in several funded UNIFI projects.

#### Funded Projects:

- **PRIN 2017** – PISTELLO, LAI, FREER- Addressing viral neuropathogenesis: Unraveling the molecular and cellular pathways of viral replication and host cell response and paving the



way for the development novel host-targeted, broad spectrum, antiviral agents, Prot. 2017KM79NN

- **FETOPEN-2018-2020 I-GENE**, PISTELLO, LAI, FREER: In-vivo Gene Editing by Nanotransducers, European call identifier H2020-FETOPEN-2018-2020, Proposal ID 862714
- **PAR FESR Regione Toscana 2014-2020** – PISTELLO, LAI, FREER: from TUScany and its Cultivations new Anti-Viral and Antibacterial substances (TUSCAVIA)
- **GENCOR 2022** – LAI: private funding from GENCOR SPA to test the antiviral potential of Curcumine against SARS-CoV-2 infection.
- **PRIN 2020** – LAI: development of VEGFR/Tubulin and Efflux Pump inhibitors loaded on stimuli-responsive cell membrane coated Nanocarriers for the treatment of Metastatic Cancers” - Prot. 20200239N53
- **PRIN 2020** – PISTELLO, LAI, FREER- “DissectING the complex network of virus-cell Host interactions controlling virAL replication and inflammatory response to identify novel host-targeted approaches against severe respiratory virus infections (INHALA)” Prot. n. 2020KSY3KL
- **UNIVERSITY OF PISA GRANT**: PRA\_2020\_37 – Michele Lai
- **EAHAD 2022 – Young Researcher Award – European grant** - Michele Lai

## 5. Research products

OPERETTA CLS was used in several national and international research projects, in master theses and PhD research projects. The activities were mainly related to the field of cancer biology, virology, microbiology, immunology and visualization of 3D organoids

### *List of publications*

-Borgogna, Cinzia, et al. "Patterns of neutralizing humoral response to SARS-CoV-2 infection among hematologic malignancy patients reveal a robust immune response in anti-cancer therapy-naive patients." *Blood cancer journal* 12.1 (2022): 1-6.

-Fonnesu, Rossella, et al. "Palmitoylethanolamide (PEA) Inhibits SARS-CoV-2 Entry by Interacting with S Protein and ACE-2 Receptor." *Viruses* 14.5 (2022): 1080.

6 Papers are now under revision



Master theses (Corso di laurea magistrale in Biologia o Biotecnologie molecolari)

**Giulia Sciandrone** “Screening di gRNA per distruggere il genoma di melanomi metastatici”.

Relatore Michele Lai

PhD students

Veronica La Rocca Scuola Superiore S.Anna/University of Pisa – Supervisor Michele Lai

Giulia Lottini – GENOMECCXXXVI CICLO – tesi – Supervisor Giulia Freer

Carmen Rita Piazza – GENOMECCXXXVII CICLO- – Supervisor Giulia Freer

Alessandro De Carli – GENOMECCXXXVIIICICLO – Supervisor Giulia Freer