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- ↑ GENOMICS
- ↑ TRANSCRIPTOMICS
- ↑ PROTEOMICS
- ↑ METABOLOMICS

COS is a scientific facility created to provide to the academic and industrial stakeholders community with a competitive and fully equipped infrastructure in the systems biology field.

COS has adopted an innovative bottom-up scientific approach focusing our expertise on metabolomics services and equipment as a key technology to provide useful information to advance personalised medicine/nutrition tools of systems biology.

COS provides affordable, high quality, timely omic services using cutting edge methods, state-of-the art technologies and continuous innovation in all omic sciences.

Technology Partners



Academic Partners



UNIVERSITAT ROVIRA I VIRGILI

Our Services

Metabolomics

- Detection and quantitation of metabolites, vitamins, drugs, antibiotics in biological systems.
- Analysis of complex extracts.
- Small molecules and drug metabolite structure elucidation and unknown compound characterization.
- Environmental sample analysis, forensic and toxicological screening.
- Biomarkers search and identification.
- High-throughput analysis and pesticide trace level detection, PCBs, PAHs, FAMES, phthalates, chemical contaminants, steroidal analogues in food matrices, environmental and biological samples.
- Screening services for PCDD/F detection, dioxins in animal feed and food and organotins in water.

Proteomics

- Protein identification, characterisation, relative and absolute quantitation in complex mixtures.
- Targeted proteomic profiling (SRM assays).
- Post-translational modifications analysis.
- Analysis and molecule-molecule interactions.
- Protein separation and identification by 2-D PAGE & 2-D DIGE.
- MALDI: tissue imaging.
- Bacterial identification (MALDI-Biotyper).
- Luminex bead protein array.

Transcriptomics & Genomics

- Sanger DNA Sequencing and Next-Generation Sequencing.
- Genotyping of single-nucleotide polymorphism (SNP) analysis.
- Copy number variation (CNV).
- Epigenetics analysis (DNA methylation, miRNA analysis, histone acetylation).
- Gene expression arrays.
- ChIP-on-chip (Chromatin ImmunoPrecipitation).
- Metagenomics: Bacteria and Fungus Identification.

Omic Support Services

We offer full scientific support along with the experimental help to obtain useful and sound results.

- Experiment design and support (definition of goals, sample setting, advice on omic methods).
- Sample Preparation.
- Bioinformatics support and advice (statistical, multivariate, correlation and/or pathway analysis).
- Skills training.

Omic Experimental Biological Models

COS provides in situ complementary services and facilities in order to accommodate all experimental studies and meet potential challenges before applying omic sciences.

- In vitro models / in vivo models.
- Development of Human Intervention Trials.

Our Equipment

Metabolomics

- NMR 600 MHz BrukerAvance III spectrometer fitted with a cryoprobe and a SampleJet robot.
- NMR 500 MHz BrukerAvance III spectrometer coupled to an HR-MAS probe and a X-PRESS Sample Changer.
- Gilson liquid handling robot.
- 1 Agilent 7200 Q-TOF for GC/MS.
- 1 Agilent Triple Quadrupole GC/MS.
- 1 Leco GCxGC-TOFMS.

Proteomics

- NanoDrop ND-2000 spectrophotometer.
- EXQuest spot cutter: fast, hands-free gel excision.
- Bioplex 200 bead array instrument.
- Biacore 3000 analyzer: Molecule-molecule interaction service.
- Imaging systems:
 - Pharos XP: Imager Scanner for fluorescence, chemiluminescence, chemifluorescence, densitometry, and gel documentation.
 - ChemiDoc: imager CCD instrument for chemiluminescence.
- Agilent 2100 Bioanalyzer.

Metabolomics & Proteomics

- 1 Thermo Orbitrap Velos Pro ETD.
- 1 Agilent 6530 LC/MS Q-TOF.
- 2 Agilent 6490 with iFunnel technology Triple quadrupole LC/MS.
- 1 Agilent 6550 iFunnel Q-TOF LC/MS.
- 1 Bruker ultrafleXtreme MALDI-TOF/TOF.
- Bravo liquid handling robot.

Transcriptomics & Genomics

- 3500 DNA Genetic Analyzer.
- Ion Torrent PGM.
- ABI PRISM 7900HT Fast Sequence Detection System.
- Thermocyclers:
 - 2720 thermocycler.
 - 9800 Fast thermocycler.
 - Verity 96-well thermocycler.
- Agilent 2100 Bioanalyzer.
- Hybridization Oven.
- Agilent DNA Microarray Scanner.
- NanoDrop ND-2000 spectrophotometer.
- Bravo liquid handling robot.
- Alpha Innotech Chemilmager.