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UNIVERSITÀ
DEGLI STUDI
FIRENZE



Giornate di Bioanalitica
Firenze, 27-28 marzo 2023
La Chimica Bioanalitica verso il 2030

Programma Finale

• Lunedì, 27 Marzo 2023

AULA MAGNA – UNIVERSITÀ DEGLI STUDI DI FIRENZE

10.30 – REGISTRAZIONE

11.30 – SALUTI ISTITUZIONALI - ALESSANDRA PETRUCCI, LUIGI MONDELLO

11.45 – **PREMIAZIONE MEDAGLIA “ALESSANDRO MANGIA” 2020, 2021, 2022, 2023**

MODERANO: LAURA ANFOSSI, ALESSANDRO MANGIA, MARIA MINUNNI

Tavola rotonda con i vincitori del premio: “La bioanalitica verso il 2030” (A. Laganà, P. Reschiglian, M. Careri)

ORTO BOTANICO - MUSEO DI STORIA NATURALE DI FIRENZE

12.30 – LIGHT LUNCH

13.15 – SESSIONE POSTER

AULA MAGNA – UNIVERSITÀ DEGLI STUDI DI FIRENZE

SESSIONE I

MODERANO: CLAUDIO BAGGIANI, ALESSANDRO PORCHETTA

14.00 – **KN1** - Emerging sustainable approaches for nanomaterials-based (bio)sensing device manufacturing.

F. DELLA PELLE, UNIVERSITÀ DI TERAMO - **PREMIO “GIOVANE RICERCATORE” 2020**

14.20 – **OC1** - The key role of ergothioneine in surface-enhanced Raman scattering spectra of biofluids.

S. FORNASARO, UNIVERSITÀ DI TRIESTE

14.35 – **OC2** - HF5-multidetecction as a fast, low volume and high-throughput method for isolation and characterization of biologically active extracellular vesicles from plasma of patients affected by Polycythemia Vera.

S. GIORDANI, UNIVERSITÀ DI BOLOGNA

14.50 – **OC3** - Screening for toxic chemicals in food packaging and their detection in biological samples.

F. PRATESI, FOOD CONTACT CENTER S.R.L

15.05 – **OC4** - Fast micro-extraction of N-Acyl-derivates in brain tissue by UHPLC-MS/MS.

F. FANTI, UNIVERSITÀ DI TERAMO

15.20 – **OC5** - Bicyclic peptide-based Assay for Human Urokinase-type Plasminogen Activator (h-uPA) Cancer Biomarker: tools for Liquid Biopsy.
G. MORO, UNIVERSITÀ DI VENEZIA

SESSIONE II

MODERA: DARIO COMPAGNONE

15.40 – PRESENTAZIONI FLASH

PF1 - Exosomes and their Cargo as “Two In One” Liquid Biopsy Tools for Cancer Biomarkers: New generation of Luminescence-Based Biosensors Integrated with FFF Isolation From Biological Fluids.
V. MARASSI, UNIVERSITY OF BOLOGNA

PF2 - IMMUNE-CRISPR: combining immunoassays with Cas12a-based detection using antibody-DNA conjugates.

E. PAIALUNGA, UNIVERSITÀ DI ROMA “TOR VERGATA”

PF3 - NanoMIPs for thyroid hormones: an enantioselective challenge.

V. TESTA, UNIVERSITÀ DI TORINO

PF4 - Set up and optimization of a LC/MS method for the characterization and control of mAbs.

V. GHIZZANI, UNIVERSITÀ DI PAVIA

PF5 - Second-generation blood microsampling for LC-MS/MS analysis of THC, CBD and their metabolites.

M. VENTURA, UNIVERSITÀ DI BOLOGNA

PF6 - A multi-tissue mercury determination in a commonly consumed elasmobranch (*Mustelus mustelus*) of the Mediterranean Sea.

E. DÍAZ-DELGADO, STAZIONE ZOOLOGICA ANTON DOHRN, FANO

PF7 - Untargeted characterization of phenolic compounds for varietal and geographical classification of industrial hemp.

E. TAGLIONI, UNIVERSITÀ DI ROMA “LA SAPIENZA”

PF8 - Chemical composition of European tea leaves: elemental content and health risk assessment for consumers.

F. GIROLAMETTI, UNIVERSITÀ POLITECNICA DELLE MARCHE

PF9 - Electrochemical cell-free biosensors for antibody detection.

S. BRACAGLIA, UNIVERSITÀ DI ROMA “TOR VERGATA”

PF10 - Analysis of Trace Elements: Eurasian Otter (*Lutra lutra*) an Expanding Sentinel Species in Friuli Venezia Giulia Region.

M. VIT, UNIVERSITÀ DI UDINE

PF11 - Paper card-like electrochemical platform for point-of-care detection of glucose in tears.

N. SEDDAOUI, UNIVERSITÀ DI ROMA “TOR VERGATA”

PF12 - Size separation and characterization of human polysomes by flow field-flow fractionation.

A. ZATTONI, UNIVERSITÀ DI BOLOGNA

PF13 - Development of a miniaturized potentiometric sensor for calcium detection in capillary blood.

L. GULLO, UNIVERSITÀ DI ROMA “TOR VERGATA”

PF14 - Design of a printed electrochemical strip towards miRNA-21 detection in urine samples: optimization of the experimental procedures for real sample application.

W. CIMMINO, UNIVERSITÀ DI NAPOLI “FEDERICO II”

PF15 - An Origami Paper-Based Biosensor for Allergen Detection by Chemiluminescence Immunoassay on Magnetic Microbeads.

A. PACE, UNIVERSITÀ DI BOLOGNA

PF16 - A 3D-printed electrochemiluminescent enzymatic glucose biosensor based on luminol-H₂O₂ system and smartphone detection.

D. CALABRIA, UNIVERSITÀ DI BOLOGNA

16.40 – COFFEE BREAK E SESSIONE POSTER

AULA MAGNA – UNIVERSITÀ DEGLI STUDI DI FIRENZE

SESSIONE III

MODERANO: ANNA LAURA CAPRIOTTI, BARBARA RODA

17.10 – **KN2** - New perspectives of peptides: from nutraceuticals to diagnostics.

C. M. MONTONE, UNIVERSITÀ DI ROMA “LA SAPIENZA” - **Premio “Giovane Ricercatore” 2021**

17.30 – **OC6** - An expanded framework for Swab Touch Spray-Mass Spectrometry towards food allergen analysis.

L. TOMA, UNIVERSITÀ DI PARMA

17.45 – **OC7** - Microfluidics paper-based wearable electrochemical (bio)sensors for reliable detection of biomarkers in sweat.

V. MAZZARACCHIO, UNIVERSITÀ DI ROMA “TOR VERGATA”

18.00 – **OC8** - Raman spectroscopic analysis of quality changes of lipoproteins in obese and healthy subjects.

A. BONIZZI, ISTITUTI CLINICI SCIENTIFICI MAUGERI IRCCS DI PAVIA

18.15 – **OC9** - Optimization of a molecular beacon-based signal-off SERS biosensor for miRNA detection.

S. TOMBELLI, CNR SESTO FIORENTINO (FI)

18.30 – **OC10** - Turning CRISPR-Cas12a Activity ON Using PAM-Engineered DNA Translator Responsive to Antibody.

N. BAGHERI, UNIVERSITÀ DI ROMA “TOR VERGATA”

ORTO BOTANICO - MUSEO DI STORIA NATURALE DI FIRENZE

18.45 – 21.30 APERICENA

• Martedì, 28 Marzo 2023

AULA MAGNA – UNIVERSITÀ DEGLI STUDI DI FIRENZE

SESSIONE IV

MODERANO: SANDRA FURLANETTO, ROCCALDO SARDELLA

09.00 – **KN3** - Antibody-responsive DNA-based sensors for diagnostic applications.

S. RANALLO, UNIVERSITÀ DI ROMA “TOR VERGATA” - **Premio “Cristina Giovannoli” 2022**

09.20 – **OC11** - Design of Immunoassays based on a Plant-Produced Antibody.

T. SERRA, UNIVERSITÀ DI TORINO

09.35 – **OC12** - Robust analytical performances of a label-free electrochemical biosensor for the detection of Interleukin-6.

R. CANCELLIERE, UNIVERSITÀ DI ROMA “TOR VERGATA”

9.50 – **OC13** - Novel hydrogel films integrating Prussian Blue nanoparticles and enzymes: a versatile strategy for portable electrochemical (bio)sensing.

A. RAUCCI, UNIVERSITÀ DI NAPOLI

10.05 – **OC14** - In Vitro Inhibitory Effect of Green Tea Catechin Extracts against the SARS-CoV-2 Papain-like Protease Activity.

E. AITA, UNIVERSITÀ DI ROMA LA SAPIENZA

10.20 – **OC15** - An origami paper-based chemiluminescent biosensor exploiting a structure-switching ATP-binding DNA aptamer.

E. LAZZARINI, UNIVERSITÀ DI BOLOGNA

10.35 – **OC16** - Estradiol detection in water samples related to aquaculture exploiting plasmonic spoon-shaped biosensors.

M. SEGGIO, UNIVERSITÀ DI VERONA

10.50 – **OC17** - Smartphone-based colorimetric paper sensor for food quality control based on biogenic amines monitoring.

D. GREGUCCI, UNIVERSITÀ DI BOLOGNA

ORTO BOTANICO - MUSEO DI STORIA NATURALE DI FIRENZE

11.05 – COFFEE BREAK E SESSIONE POSTER

AULA MAGNA – UNIVERSITÀ DEGLI STUDI DI FIRENZE

SESSIONE V

MODERANO: LAURA ANFOSSI, SANDRA FURLANETTO, ALESSANDRO PORCHETTA, BARBARA RODA

11.35 – **KN4** - Recent frontiers in lipidomics analyses by high-resolution mass spectrometry.

A. CERRATO, UNIVERSITÀ DI ROMA LA SAPIENZA - **Premio “Cristina Giovannoli” 2023**

11.50 - **OC18** - From one-pot to tailor-made: an FFF-assisted analytical approach to develop high quality and ready-to-use conjugated gold nanoparticles for sensing applications.

V. MARASSI, UNIVERSITÀ DI BOLOGNA

12.05 - **OC19** - Improving sensitivity and versatility of lateral flow immunoassays maintaining the full compliance to ASSURED criteria.

S. CAVALERA, UNIVERSITÀ DI TORINO

12.20 – **OC20** - Metal nanoparticles laser patterning for cellulosic devices development.

A. SCROCCARELLO, UNIVERSITÀ DI TERAMO

12.35 – **OC21** - Nanostructured electrochemical platforms: building biomimetic sensors for food applications.

G. SELVOLINI, UNIVERSITÀ DI FIRENZE

12.50 – **OC22** - Solid-phase synthesis of nanoMIPs: how the parameters optimization can improve their binding ability.

M. CHIARELLO, UNIVERSITÀ DI TORINO

13.05 – **OC23** - Thermogravimetry coupled with chemometrics for the differential diagnosis of hereditary hemolytic disorders.

G. GULLIFA, UNIVERSITÀ DI ROMA “LA SAPIENZA”

13.20 – CHIUSURA

ORTO BOTANICO - MUSEO DI STORIA NATURALE DI FIRENZE

13.30 - LIGHT LUNCH

COMUNICAZIONI POSTER

P01: BIOLUMINESCENCE ANALYTICAL METHOD BASED ON 3D MICROTISSUES FOR THE EVALUATION OF DIFFERENT BIOACTIVITIES OF WATER SAMPLES

MARIA MADDALENA CALABRETTA, Denise Gregucci, Marina Bonini, Elisa Neri, Martina Zangheri, Elisa Michelini

P02: A COMPREHENSIVE EVALUATION SCHEME AND QUALITY CONTROL AND PURIFICATION OF READY-TO-USE CONJUGATED GOLD NANOPARTICLES BASED ON ASYMMETRIC FLOW FIELD-FLOW FRACTIONATION (AF4)

JUNJIE WANG, Stefano Giordani, Valentina Marassi, Barbara Roda, Pierluigi Reschiglian, Andrea Zattoni

P03 NATURAL NEUROTRANSMITTERS AS "GREEN" FUNCTIONAL MONOMERS FOR PROTEIN IMPRINTING

FEDERICA BATTAGLIA, Francesca Torrini, Pasquale Palladino, Simona Scarano, Maria Minunni

P04 MONOCLONAL ANTIBODIES (MABS) OPTICAL DETECTION BY COUPLING INNOVATIVE IMPRINTED BIOPOLYMERS AND MAGNETIC BEADS: THE CASE OF THERAPEUTIC MAB ANTI-MYOSTATIN DETECTION

Francesca Torrini, FEDERICA BATTAGLIA, Davide Sestaioni, Pasquale Palladino, Simona Scarano, Maria Minunni

P05 SYNTHESIS OF NANOPARTICLE-DECORATED BIODEGRADABLE MEMBRANES FOR USE IN ELECTRO-MEMBRANE EXTRACTION TECHNIQUES

BENEDETTA PASQUINI, Luca Marzullo, Serena Orlandini, Sandra Furlanetto, Cristina Román-Hidalgo, Adrián Vázquez-Romero, Mercedes Villar-Navarro, Germán López-Pérez, M^a Jesús Martín-Valero

P06 DESIGN FOR A PLATFORM FOR ANALYSIS AND SELECTIVE QUANTIFICATION OF THE AMOUNT OF UREA IN WASTEWATER AND FLUIDS OF BIOLOGICAL ORIGIN

LORENZO QUADRINI, Claudio Ciccone, Ilaria Palchetti

P07 DEVELOPMENT OF AN ANTIGEN LATERAL FLOW IMMUNOASSAY FOR THE ON-FIELD DETECTION OF AFRICAN SWINE FEVER VIRUS IN TARGET TISSUES

SIMONE CAVALERA, Barbara Colitti, Gianmario De Mia, Francesco Feliziani, Silvia Dei Giudici, Thea Serra, Valentina Testa, Matteo Chiarello, Fabio Di Nardo, Claudio Baggiani, Sergio Rosati, Laura Anfossi

P08 THREE STRATEGIES FOR THE MONITORING OF THE IMMUNE RESPONSE TO SARS-CoV-2 BASED ON LATERAL FLOW IMMUNOASSAY

SIMONE CAVALERA, Barbara Colitti, Chiara Nogarol, Cristina Guiotto, Domenico Cosseddu, Thea Serra, Valentina Testa, Matteo Chiarello, Fabio Di Nardo, Claudio Baggiani, Sergio Rosati, Laura Anfossi

P09 SOLID-PHASE SYNTHESIS OF NANOMIPS: THE EFFECT OF DELAYED IMPRINTING ON THE POLYMERISATION

MATTEO CHIARELLO, Valentina Testa, Thea Serra, Fabio Di Nardo, Simone Cavaleri, Laura Anfossi, Claudio Baggiani

P10 EVALUATION OF ALKALOIDS CONTENT IN LUPINUS ALBUS L. SAMPLES BY MEANS OF HPLC-MS/MS

FABIOLA EUGELIO, Sara Palmieri, Federico Fanti, Luana Messuri, Alessia Pepe, Dario Compagnone, Manuel Sergi

P11 FLUOROQUINOLONES IN HUMAN PLASMA AND THEIR UHPLC-PDA DETERMINATION USING ELECTROSPUN SORBENT FOR THE SOLID-PHASE EXTRACTION

Vincenzo Ferrone, Pantaleone Bruni, GIUSEPPE CARLUCCI

P12 LATERAL FLOW ASSAYS BASED ON DECORATED DNA SCAFFOLDS

SIMONE BRANNETTI, Serena Gentile, Alejandro Chamorro-Garcia, Erica Del Grosso, Francesco Ricci

P13 ONE-STEP ELIMC-BASED ASSAY FOR DETECTION OF TOTAL MICROCYSTINS AND NODULARINS IN WATER SAMPLES: SETTING-UP OF THE EXPERIMENTAL CONDITIONS FOR MODULATING SENSITIVITY

GIULIA VOLPE, Silvia Piermarini, Laura Fabiani, Danila Moscone

P14 EVALUATION OF THE ALTERATIONS IN MICE URINARY METABOLOMIC PROFILE FOLLOWING THE ADMINISTRATION OF OPIOIDS BY UHPLC-HRMS

Gaia Di Francesco, Martina Croce, Livia Gerecitano, FLAMINIA VINCENTI, Camilla Montesano, Matteo Marti, Manuel Sergi, Roberta Curini

P15 EXPLOITING PLATINUM NANOPARTICLES AS COLORIMETRIC LABEL IN LATERAL FLOW IMMUNOASSAY
FABIO DI NARDO, Simone Cavalera, Laura Anfossi, Claudio Baggiani

P16 SUSTAINABLE, COST-EFFECTIVE, AND FLEXIBLE SCREEN-PRINTED POTENTIOMETRIC SENSOR FOR RELIABLE ION CHLORIDE DETECTION IN SWEAT
ACHREF CHEBIL, Luca Fiore, Noemi Colozza, Vincenzo Mazzaracchio, Fabiana Arduini

P17 DESIGN AND OPTIMIZATION OF AN ON-FIBER CHEMILUMINESCENCE BIOSENSING SYSTEM
Cosimo Trono, SARA TOMBELLI, Simone Berneschi, Ambra Giannetti, Francesco Baldini, Donato Calabria, Massimo Guardigli, Mara Mirasoli

P18 SMART SENSOR FOR LITHIUM DRUG MONITORING DETECTION
ILARIA ANTONIA VITALE, Giulia Selvolini, Giovanna Marrazza

P19 AN IMPEDIMETRIC APPROACH TO DETECT B-LACTOGLOBULIN IN MILK-FREE PRODUCTS
GIULIA SELVOLINI, Niran Öykü Erdoğan, Iliaria Antonia Vitale, Gözde Aydoğdu Tiğ, Giovanna Marrazza

P20 INNOVATIVE COMBINATION OF THERMAL DESORPTION WITH ON-LINE SOLID PHASE EXTRACTION REVERSED PHASE LIQUID CHROMATOGRAPHY APPLIED TO TARGETED NUTRIMETABOLOMICS IN HUMAN BIOFLUIDS
Lapo Renai, Luca Marzullo, GIULIA BONACCORSO, Serena Orlandini, Massimo Del Bubba

P21 AF4 COUPLED TO CHEMOMETRICS FOR THE ANALYSIS OF PROTEIN FRACTION OF MILK
NICHOLAS KASSOUF, Pierluigi Reschiglian, Barbara Roda, Andrea Zattoni, Alessandro Zappi, Pietro Morozzi, Dora Melucci, Valentina Marassi

P22 - A NEW MICROSAMPLING AND ENANTIOSELECTIVE LIQUID CHROMATOGRAPHY COUPLED TO MASS SPECTROMETRY APPROACH FOR THE BIOANALYSIS OF NOVEL PSYCHOACTIVE SUBSTANCES
Michele Protti, Ina Varfaj, GHAID W. A. ABUALZULOF, Claudia Faedda, Andrea Carotti, Daniele Tedesco, Manuela Bartolini, Laura Micolini, Roccaldò Sardella

P23 A GUANOSINE-DERIVED SUPRAMOLECULAR HYDROGEL WITH DNAZYME-LIKE PEROXIDASE ACTIVITY AS A NOVEL PLATFORM FOR HYDROGEN PEROXIDE DETECTION
ILARIA TROZZI, Donato Calabria, Elisa Lazzarini, Andrea Pace, Silvia Pieraccini, Stefano Masiero, Mara Mirasoli

P24 THE BIOLUMINESCENT RECOMBINANT PROTEIN JAGGED1-FLUC AS POTENTIAL DIAGNOSTIC TOOL FOR THE HIGH-THROUGHPUT SCREENING OF COLORECTAL CANCER
ANGELA PUNZO, Alessia Silla, Patrizia Simoni, Antonio Pannuti, Barbara Roda, Aldo Roda, Sylvia Daunert, Cristiana Caliceti

P25 CHEMICAL CHARACTERIZATION OF A DEEP IONIAN SEA SEDIMENT CORE
MATTEO FANELLI, Serenella Zampatti, Federico Girolametti, Behixhe Ajdini, Anna Annibaldi, Cristina Truzzi, Silvia Illuminati, Federico Spagnoli

P26 EXPLORING THE DIAGNOSTIC POTENTIAL OF CHEMOMETRIC FINGERPRINTING FROM FFF-SORTED BIOLOGICAL SAMPLES TO TRACK AND DETECT EXOSOMAL POPULATION IN CANCER PATIENTS' SERUM
PLACCI ANNA, Valentina Marassi, Barbara Roda, Stefano Giordani, Andrea Zattoni, Pierluigi Reschiglian, Angela Punzo, Cristiana Caliceti, Aldo Roda, Benedetta Pasquini, Serena Orlandini, Sandra Furlanetto

P27 UNTARGETED METABOLOMICS STRATEGY BASED ON ULTRA-HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY-HIGH-RESOLUTION-ION MOBILITY-MASS SPECTROMETRY FOR CEREAL QUALITY AND TRACEABILITY
Nicolò Riboni, Maurizio Piergiovanni, FEDERICA BIANCHI, Monica Mattarozzi, Mariolina Gullì, Marina Caldara, Nelson Marmiroli, Maria Careri

P28 ELECTROCHEMICAL GENOASSAY ON MAGNETIC BEADS FOR ULTRA-SENSITIVE DETECTION OF KRAS ONCOGENE MUTATION ASSOCIATED WITH COLORECTAL CANCER IN LIQUID BIOPSY
Simone Fortunati, Chiara Giliberti, Roberto Corradini, Andrea Rozzi, Martina Neri, Alessandro Bertucci, MARCO GIANNETTO, Maria Careri

P29 PRELIMINARY INVESTIGATION ON THE COMBINATION OF GC-MS AND HPLC-UV/PDA METHODOLOGIES FOR MONITORING HONEYBEE (*APIS MELLIFERA*) METABOLIC AND FORAGING STATUS
RITA NASTI, Valeria Leone, Luca Giupponi, Annamaria Giorgi, Giangiacomo Beretta