Curriculum Vitae Nazzareno Cannella PhD

PERSONAL INFORMATION
Name, Family name: Nazzareno Cannella
Title: PhD, MSc
ORCID ID:
Mobile:
@mail:
Nationality: Italian
Born: Montegranaro, Italy, February 23rd 1976

Spoken languages (level): **1)** Italian (native); **2)** English (excellent); **3)** German (intermediate); **4)** Spanish (intermediate); **5)** French (intermediate)

- **EDUCATION**

2009 PhD in Pharmaceutical Science
School of Pharmacy, Pharmacology Unit, University of Camerino, Italy

2005 Master of Science (MSc) in Biological Sciences
Faculty of Mathematical , Physical and Natural Science/ Department, University of Camerino, Italy

- **CURRENT POSITION**

2015 – till date Post-doctoral researcher.
(Research team of Prof Piervincenzo Piazza; direct supervisor Veronique Deroche-Gamonet veronique.deroche@inserm.fr)
INSERM U862, Pathophysiology of Addiction, NeuroCentre Magendie, University of Bordeaux,146 rue Léo Saignat, Bordeaux, France

- **PREVIOUS POSITIONS**

2010 – 2015 Post-doctoral researcher.
(Research group of Rainer Spanagel, rainer.spanagel@zi-mannheim.de)
Institute of Psychopharmacology, Central Institute of Mental Health, Medical Faculty Mannheim/Heidelberg University, Mannheim, Germany

2009 – 2010 Research fellowship researcher.
(Research group of Roberto Ciccocioppo, roberto.ciccocioppo@unicam.it)
School of Pharmacy, Pharmacology Unit, University of Camerino, Italy

2007 – 2008 Visiting scholar.
(Research group of Luis deLecea, llecea@stanford.edu)
Department of psychiatry and Behavioral Sciences, Stanford University School of Medicine, Palo Alto, (CA) USA

2006 – 2009 PhD student.
(Research group of Roberto Ciccocioppo, roberto.ciccocioppo@unicam.it)
School of Pharmacy, Pharmacology Unit, University of Camerino, Italy

2007 – 2008 PhD student as visiting scholar.
(Research group of Eric W Roubos, llecea@stanford.edu)

Department of Psychiatry and Behavioral Sciences, Stanford University School of Medicine, Palo Alto, USA.

2005 Volunteer research assistant
(Research group of Eric W Roubos, roubos@science.ru.nl)
Department of Cellular Animal Physiology, Donders Institute for Brain, Cognition and Behaviour, European Graduate, School of Neuroscience, Radboud University, Nijmegen, The Netherland

2005 Volunteer research assistant
(Research group of Alberta Polzonetti, alberta.polzonetti@unicam.it)
Department of Morphological and Biochemical Comparative Sciences, University of Camerino, Camerino, Italy

2004 – 2005 Internship student
(Research group of Eric W Roubos, roubos@science.ru.nl)
Department of Cellular Animal Physiology, Donders Institute for Brain, Cognition and Behaviour, European Graduate, School of Neuroscience, Radboud University, Nijmegen, The Netherland

- **SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS**

During his research career as PhD student and post-doc researcher, Dr Cannella has supervised the internship of several bachelor and master students in the laboratories where he was working. As post-doc in Mannheim and in his current position in Bordeaux, Dr Cannella supervises the activities of PhD students.

- **TEACHING ACTIVITIES (if applicable)**

2013 Lecturer – Pharmaceutical Biotechnology. University of Camerino, Italy
2014 Lecturer – Behavioural Pharmacology, Heidelberg University, Germany

- **MAJOR ONGOING COLLABORATIONS**

Rainer Spanagel, Psychopharmacology and neurobiology of addiction, Central Institute of Mental Health, Medical Faculty Mannheim/Heidelberg University, Mannheim, Germany

Georg Köhr In-vivo electrophysiology in addiction-like behaviour, Central Institute of Mental Health, Medical Faculty Mannheim/Heidelberg University, Mannheim, Germany

Wolfgang Weber-Fahr, neuroimaging in laboratory rodents, Central Institute of Mental Health, Medical Faculty Mannheim/Heidelberg University, Mannheim, Germany

Alejandro Cosa-Linan, neuroimaging in laboratory rodents Central Institute of Mental Health, Medical Faculty Mannheim/Heidelberg University, Mannheim, Germany

Hylman Bading, Epigenetic mechanisms in addiction, Central Institute of Mental Health, Medical Faculty Mannheim/Heidelberg University, Mannheim, Germany

Veronique Deroche-Gamonet, preclinical modelling in psychiatry, NeuroCentre Magendie, University of Bordeaux,146 rue Léo Saignat, Bordeaux, France

Roberto Ciccocioppo, Psychopharmacology and neurobiology of addiction, School of Pharmacy, Pharmacology Unit, University of Camerino, Italy

EDITORIAL ACTIVITIES

Dr Cannella serves as reviewer for the following journals:

1. Addiction Biology
2. Psychoneuroendocrinology
3. Alcoholism Clinical & Experimental Research (ACER)

INVITED PRESENTATION IN SCIENTIFIC CONFERENCES

On September 2nd 2016 Dr Cannella will give a presentation at the ISBRA/ESBRA 2016 World Congress where, in the symposium entitled "Can We Learn From Other Addictions? A DSM-Based Animal Model: Behavior, Networks, Physiology and Translation", he will present MRI data on rats showing addiction-like and addiction-resilience-like phenotype collected during his post-doc in Mannheim

MAJOR TECHNICAL SKILLS

Optogenetic and pharmacological modulation of behavioural performances in rodents such as:

- Multi-Symptomatic rat Model of Transition to Cocaine Addiction (0/3crit model)
- Rat and mouse models of drugs (cocaine, nicotine, alcohol) and food operant self-administration (fixed ratio, progressive ratio, and escalation of cocaine intake), reinstatement of extinguished drug seeking behaviour (stress, cues, priming, optogenetic stimulation), incubation of cocaine craving. Two bottle choices. Place conditioning.
- Rat and mouse models of anxiety and locomotion such as elevated plus maze, open-field, defensive burying, light-dark box
- Physical sign of alcohol, morphine, and nicotine withdrawal

Adaptation of Rodent models of addiction to multidisciplinary in-vivo testing such use Magnetic Resonance Imaging and in-vivo electrophysiology

Surgical and sampling skills in rodents

- Intra-cranial surgery and compound (and virus) delivery
- Optic fibre implantation
- Jugular vein catheterization
- Intra-gastric catheterization
- Tail blood sampling
- Intra-cardiac perfusion
- Brain sampling and slicing

Immunoistochemistry

- Classical immunohistochemistry
- Retrograde and anterograde tracing approaches
- Confocal microscopy analysis

Molecular Biology

- In situ hybridization
- Viral vector design

ACHIEVEMENT TRACK-RECORD

Quality of research activities

The very first project to which Nazzareno Cannella participated was before entering the PhD program, when he worked as a volunteer in the laboratory of Prof. Polzonetti at the University of Camerino. The goal of that project was to study the molecular mechanisms of gonad switch in the fish Sparus Aurata. This initial experience yielded the publication of his first paper (PMID: 16929534). More important, this experience gave him the possibility to learn several techniques in the molecular biology field, which together with histological techniques learned during his master thesis and other experience described later, helped him to have a multi-facet view when approaching scientific tasks. With the beginning of the PhD his interest moved stably from reproductive biology to behavioral neurobiology. The first project in which he was stably involved initiated at the beginning of 2006 when he entered into my PhD program. It was the study of the role of Neuropeptide S (NPS) in reward and addiction. During three years of PhD and one year afterward, he investigated the role of the NPS on food, ethanol and cocaine seeking behavior, which led to several publications. In the same period he validated and established at the pharmacology unit of the University of Camerino a model of place conditioning, which was used to study the intrinsic rewarding properties of NPS, which was published recently (PMID: 23041581). During this period he also gave his contribution to other projects ongoing in the lab. his involvement in these projects contributed to further expand his knowledge on other systems involved in addiction such as endocannabinoid (PMID: 18446329), PPARγ (PMIDs: 23550625; PMID: 21276964), GABA (PMID: 21887495), and stress-related neuropeptides (PMIDs: 19673740; 19913192; 19948148). In addition, during his PhD he spent one year in the laboratory of Prof L de Lecea, at the School of Medicine of Stanford University. During this period he learned to use the optogenetic technique, he got acquainted with virus mediated transgene expression studies, and he further enlarged his range of knowledge on addiction neurobiology (PMID: 19948148). After obtaining his PhD, he participated to a competitive call for a post-doctoral position at the Central Institute of Mental Health in Mannheim (Heiderlberg University, Germany). His application was successful and he was therefore selected to work in the laboratory of Prof. Rainer Spanagel, where he was involved in the study of subjective vulnerability to cocaine addiction using the 0/3crit model of cocaine addiction (PMID: 23624743). Working as part of Prof. Spanagel's team, he acquired the technical skills necessary to combine rodent models of addiction with neuroimaging techniques, namely the implantation of MRI compatible materials, such as optic fibers and catheters, passing through the limited space allowed by the magnetic coil. This approach allowed him to study altered brain connectivity, structure and activity in addict-like respect to non-addict like rats (manuscripts in preparation). In addition and perhaps more importantly, working as project coordinator on behalf of Prof Spanagel he learned to design and lead multidisciplinary experiments integrating behavior, neuroimaging, pharmacology, optogenetic. He have also studied the involvement of CREB (PMID: 24966820), GLUA1, Glast, and CamK4 in cocaine addiction using mouse models as well as epigenetic mechanisms underlying cocaine addiction (in preparation). In Mannheim he collaborated also with Prof Georg Köhr. With Prof Köhr he applied in-vivo electrophysiology to study both evoked and spontaneous cortico-limbic activity during reinstatement of cocaine seeking before and after of incubation craving (in preparation). After closing his work in Mannheim he successfully applied for a post-doc position at the Physiopathology of Neuronal Plasticity team lead by Prof Pier-Vincenzo Piazza of the Neurocentre Magendie in Bordeaux, France (INSERM, U862). Here, in collaboration with Dr Veronique Deroche-Gamonet he is developing a model of nicotine addiction with which he aims to study neurobiological underpins of subjective differences between cue-driven and withdrawal-driven nicotine addiction sub-population, the project involve also the use of in-vivo electrophysiology in collaboration with Dr Cyril Herry.

In his career He has produced 19 publications in high-ranked scientific journal and presently he has data collected for additional 8 papers being in preparation (publications list in attachment).

Independent thinking and leadership qualities

Since the beginning of his academic career (January 2006), Dr Cannella demonstrated several time to possess managing and independent thinking skills. During his PhD school I joined Prof de Lecea's team at the Stanford University. Arrived in Stanford in September 2007, he was asked by Prof de Lecea to establish an operant-behavior sub-division in his laboratory. Doing so, he had the possibility to study the optogenetic stimulation of hypothalamic hypocretin/orexin neurons on cocaine seeking in mice (Abstract of the *40th SfN, Annual Meeting*, San Diego, Ca, November 13-17 2010. WW2 887.4; manuscript in preparation). In 2009 he obtained the PhD in "Pharmaceutical Sciences" at the International School of Advanced Studies of the University of Camerino. As post-doc researcher at the Central-Institute of Mental Health (Mannheim,

Germany), he managed a project based on a multidisciplinary approach that combines complex behavioral models like the 0/3crit model of addiction and incubation of cocaine seeking with optogenetic, neuroimaging and in-vivo electrophysiology. The scope was to investigate at multidisciplinary level the neuronal basis of vulnerability to drug abuse. In this project he had two major responsibility: 1) To adapt behavioral tests and training combined to these other techniques; this work has led to a major publication 2); To facilitate and supervise the integration of few research units (neuroimaging, molecular biology, electrophysiology, and pharmacology groups) within the context of the project. This latter aspect of his activities has significantly contributed to build his leadership and planning skills.

Capacity to create networks and establish collaborations

Dr Cannella's scientific training was achieved through multiple experiences in various prestigious EU and US laboratories. He was a master student when he spent an internship period at the Radboud University of Nijmegen (The Netherland). After then he visited several laboratories in Italy, USA, France, and Germany. This continuous traveling from one laboratory to the other allowed him to create a wide network of colleagues and friends among the scientific community. The ongoing collaborations with scientist of prestigious laboratories, and the chance of re-establish old and new collaboration with old and new acquaintances met in his travelling, guarantee the international breath of his activities and demonstrate that he has the possibility to exploit his research work with the collaboration of a broad group of distinguished scientists working in top ranking scientific institutions in the world.