

CCNP NEWSLETTER

APRIL 2022

(<http://www.ccnp.ca>)

44TH ANNUAL MEETING

The 44th Annual CCNP Meeting will be held virtually on October 27, 2022. Further information will be available in future.

Keynote Speaker: Dr. Adrian Owen
The Brain and Mind Institute, Western University
Expert in the lasting impact of COVID-19 on the brain

SAVE THE DATE!

CCNP 2022 ELECTION RESULTS

An election was held in the New Year. The following individuals were elected and will commence their two-year position as of June 1, 2022:

President	-	Dr. Cecilia Flores (Montreal)
Past President	-	Dr. Zafiris (Jeff) Daskalakis (San Diego, USA)
Vice President	-	Dr. Daniel Mueller (Toronto), by acclamation
Treasurer	-	Dr. Argel Aguilar-Valles (Ottawa), by acclamation
Secretary	-	Dr. Darrell Mousseau (Saskatoon), by acclamation
Councillors (3 Basic)	-	Dr. Natalina Salmaso (Ottawa) Dr. Angelica Torres-Berrio (Montreal) Dr. Tak Pan Wong (Montreal)
Councillors (3 Clinical)	-	Dr. Alexander McGirr (Calgary) Dr. Romina Mizrahi (Verdun) Dr. Kayla Stone (Calgary)
Junior Councillors (2)	-	Ms. Mikaela Dimick (Toronto), by acclamation Ms. Jasmine Cakmak (London), by acclamation
Awards Committee Basic (1)	-	Dr. Francesco Leri (Guelph), by acclamation
Awards Committee Clinical (1)	-	Dr. Rajamannar Ramasubbu (Calgary), by acclamation

Thank you to all who have served in the above positions and congratulations to the newly elected members above!

CCNP 2022 MAJOR AWARDS RECIPIENTS

Heinz Lehmann Award	-	Dr. Bruno Giros
Innovations in Neuropsychopharmacology	-	Dr. Gabriella Gobbi
Young Investigator Award	-	Dr. Alexander McGirr
CCNP Medal	-	Dr. Gary Remington

Please see the attached bios. Congratulations to the above individuals!



CCNP MEMBERSHIP

We encourage each member of the CCNP to invite at least one other person in the field of neuropsychopharmacology to join our ranks. Enclosed is a recruitment letter that can be used to encourage new members to join the CCNP. Please fill in your name as the sponsor and invite a colleague that you feel will be a valuable addition to the CCNP to submit an application for membership. This is very important since the larger the membership of the CCNP, the more representative of the field of neuropsychopharmacology research it will be. Please, therefore, consider asking all of your colleagues who are interested in research to consider joining. Those wishing to apply for CCNP membership can do so on-line at the CCNP website (<http://www.ccnp.ca>).

Membership dues are \$150 per year for Fellows, and \$25 per year for both Junior Members and Retired Fellows. Access to the *Journal of Psychiatry and Neuroscience*, the CCNP's official journal, is offered to the CCNP membership free-of-charge.

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Dr. Alexander McGirr
2022 Young Investigator Award Recipient

The 2022 Young Investigator Award will be presented to Dr. Alexander McGirr at the 44th Annual Meeting of the Canadian College of Neuropsychopharmacology (Virtual). The Young Investigator Award, sponsored by Pfizer Canada Inc., is designed to recognize outstanding research contributions in the field of neuropsychopharmacology by an individual young basic scientist or clinical investigator in Canada.

Dr. McGirr is an assistant professor and psychiatrist at the University of Calgary. He completed his psychiatry residency at the University of British Columbia (UBC) in 2017 and his PhD in neuroscience, also at UBC, in 2019. Prior to this, he completed a Master's degree in neuroscience (focused on suicide) at McGill University and completed his medical training at the University of Toronto. His clinical laboratory uses non-invasive neurostimulation methods to improve treatment outcomes in mood disorders, and his pre-clinical laboratory uses mouse models of stress to inform novel treatments. He has published over 90 manuscripts and book chapters in the areas of clinical psychiatry and translational neuroscience.

While Dr. McGirr may only be in his fourth year of clinical practice and independent research, he has a 15-year history of clinical psychiatry research productivity reflected in more than 80 peer reviewed publications, the majority of which he is listed as the first or last author; his publications have garnered more than 4,400 citations and he has a Google Scholar H-Index of 37. His earliest contributions to clinical psychiatry research are in the field of suicide, where, working with Dr Gustavo Turecki, he made several important contributions on the impulsive aggressive diathesis for suicide (for example, McGirr et al, 2009 – *Am J Psychiatry*; McGirr et al, 2010 – *JPN*). Eight of the papers from this work have over a hundred citations each. As a graduate student, the importance of his work was recognized with three CIHR Brain Star Awards and a #1 ranking in the 2015 CIHR Vanier competition. His potential as a clinician scientist has been recognized with the Association of Chairs of Psychiatry in Canada Annual Research Award, a CINP Young Investigator Award, and an Early Career Achievement Award from the Canadian Psychiatric Association.

Dr. McGirr's current clinical research program at the University of Calgary is unique in Canada and involves the intersection of non-invasive brain stimulation and mechanistically informed pharmacological adjuncts to enhance treatment outcomes. This research is the direct product of the breadth of his clinical and pre-clinical training, as it integrates a molecular understanding of plasticity with knowledge of large-scale brain network dysfunction in mood disorders. Using electromyographic recordings and electroencephalography together with repetitive transcranial magnetic stimulation (rTMS), he is repurposing existing safe agents and testing their ability to enhance and stabilize synaptic plasticity. His group has shown that N-methyl-D-aspartate receptor partial agonism stabilizes rTMS motor plasticity for up to 24h (Cole et al, 2021 – *Clin Neurophysiol*), and his group has finished a double-blind Phase 2 randomized placebo-controlled superiority clinical trial of adjunctive NMDA agonists in Major Depressive Disorder. This positive trial may prove highly impactful as it would constitute a low-cost and easily scalable means of enhancing treatment outcomes within the existing Canadian and international neurostimulation infrastructure.

Dr. McGirr has already made a number of other important contributions to the field of neuropsychopharmacology. He recently co-led the Canadian Network for Mood and Anxiety Treatments (CANMAT) taskforce recommendations on ketamine for Major Depressive Disorder (Swainson, McGirr et al, 2021 – *Can J Psychiatry*). His systematic review and meta-analysis of subanesthetic ketamine in the treatment of depression (McGirr et al, 2015 – *Psychol Med*) is in the ISI top 1%. His meta-analyses of ketamine as an adjunct to electroconvulsive therapy are clinically useful and highly cited (McGirr et al, 2015 – *J Psych Res*; McGirr et al, 2017 – *BJP*).

Dr McGirr is also uniquely skilled to carry out translational research, having also pursued a basic science PhD under the mentorship of Dr Timothy Murphy at UBC. In the context of his basic research laboratory, he has also directly contributed to our mechanistic understanding of subanesthetic ketamine's antidepressant properties (McGirr et al, 2017 - *Brain*). This is but one example of his ability to harness his basic science research to address important clinical problems.

In the area of bipolar disorder, his work has shown that second generation antidepressants are safe and efficacious in the treatment of depression, but these are time-limited treatments as the risk for a treatment emergent episode of mania/hypomania increases over time (McGirr et al, 2016 – Lancet Psychiatry). His work has described recurrence patterns following a first episode of mania (Gignac et al, 2015 J Clinical Psychiatry and 2015 J Affective Disorders), and changes in cortical gray matter volume after a first episode of mania (Kozicky et al, 2016 – Bipolar Disorders). These contributions have major clinical implications and build an important conceptual shift whereby successive episodes are seen as brain injuries that can be prevented.

In the area of non-invasive neurostimulation, Dr. McGirr has also made significant contributions to the field with meaningful clinical trials and meta-analyses. With respect to primary data, he reported one of the first accelerated forms of repetitive transcranial magnetic stimulation for Major Depression with twice daily treatments (McGirr et al, 2015 – J Affective Disorders), a randomized sham-controlled trial of right dorsolateral prefrontal cortex stimulation in Post-Traumatic Stress Disorder (Leong et al, 2020 – Can J Psychiatry) as well as a randomized sham-controlled trial of intermittent theta-burst stimulation in the treatment of bipolar depression (McGirr et al, 2021 – JAMA Network Open).

Dr. McGirr is also a dedicated educator who has been recognized with teaching awards during his residency. He currently serves as the Department of Psychiatry Postgraduate Research Director, where he advises and oversees the research and scholarly activities of all psychiatry residents in the program. As the director of the University of Calgary Non-Invasive Neurostimulation Network (N3), he also facilitates a seminar series for approximately 50 graduate and post-graduate level trainees. He currently supervises 2 graduate students and 3 postdoctoral fellows.

Dr. Alexander McGirr is undoubtedly a most worthy co-recipient of the CCNP 2022 Young Investigator Award. Congratulations to Dr. McGirr!

Dr. Bruno Giros
2022 Heinz Lehmann Award Recipient

The 2022 Heinz Lehmann Award will be presented to Dr. Bruno Giros at the 44th Annual Meeting of the Canadian College of Neuropsychopharmacology (Virtual). The Heinz Lehmann Award, which is sponsored by Pfizer Canada Inc., is presented annually for work done primarily in Canada by Canadian scientists.

Dr. Giros is one of the world's most recognized neuropsychopharmacologists and a pioneer in dopamine receptor research. After a short stay at Genentech in 1987, where he learned the techniques of molecular biology and gene cloning, he brought these new approaches in this laboratory, allowing the cloning and discovery of new dopamine receptors, the short and long D2 dopamine receptors isoforms, and the D3 dopamine receptor (Giros et al., *Nature*, 1987; Sokoloff, Giros et al., *Nature* 1989). At that time, this discovery was a great breakthrough with a large impact on the field of dopamine research. He then moved to Duke University to work with Marc Caron and Robert Lefkowitz (a Nobel Laureate for work on G-Protein Coupled Receptors). With Marc Caron, he was able to clone for the first time the rat and human dopamine transporters, an essential component in dopamine transmission and a target of psychostimulant drugs like cocaine and amphetamine. During this postdoctoral research, Dr. Giros initiated novel techniques of homologous recombination in mice (gene knockout). He produced the first dopamine transporter gene knockout mice (published in *Nature*). With Bob Lefkowitz, Dr. Giros was able to generate the first knockout mouse model with a G protein-coupled Receptor Kinase (GRK) deletion - β ARK-1 (or GRK2), which was one of many in a long series of discoveries in the Lefkowitz laboratory.

In 1999, Dr. Giros created an independent INSERM laboratory in France and became one of the youngest directors on an INSERM laboratory that was entirely dedicated to Psychiatric research. This laboratory was also supported by Marion Leboyer and Frédéric Rouillon, the two psychiatrists that were in charge of the clinical department at Hôpital Henri Mondor in the south-east of Paris.

His laboratory, using a combination of basic and clinical research on psychiatric disorders, was very well recognized internationally as Dr. Giros was a big advocate of the importance of pre-clinical research and the essential role of animal models in psychiatry. During this period, several important discoveries of neuropsychopharmacology were made in his laboratory, e.g., characterization of the first gene involved in Autism (Jamain et al, *Nature genetics*, 34, 27-29.), the characterization and study of Vesicular Glutamate Transporter (Gras et al., 2002, *J. Neurosci.*, 22, 5442-5451. Gras et al., 2008, *Nat Neurosci.* 11, 292-300), role of DA transmission using the DATKO model (Morice et al, 2007, *Neuropsychopharm.*, 32, 2108-2116; Weiss et al., 2007, *Neuropsychopharm.*, 32, 2465-2478), and the role of the organic cation transporters in the effects of antidepressant drugs (Vialou et al., 2004 *J Neurosci.* 24, 2846-2851. Bacq et al. 2012 *Mol Psychiatry*, 17, 926-939) to cite only a few of them.

In 2007, Dr. Giros was invited to join the Douglas Research Center (McGill University) by Rémi Quirion, who was acting director at the time. Dr. Giros brought his knowledge of neuropsychopharmacology, molecular biology and mouse behavior to address mechanisms of major mental disorders.

During his time at the Douglas Research Center, with a Canada Research Chair on the Neurobiology of Psychiatric disorders from 2007-to 2014, renewed from 2014 to 2021, Dr. Giros published more than 60 publications and contributed to a large number of lectures and conferences. At the Douglas Research Center, he continued his research projects focusing on the role of dopamine in cognition, and more precisely its role in the frontal cortex and the hippocampus, two very important brain structures that are involved in many symptoms of psychiatric disorders. He also started novel projects focusing on depression and more precisely trying to identify new mechanisms and targets for this devastating mental disorders that affects about 20% of Canadian people. He recently published two major papers on this field, the first one on the role of noradrenergic transmission in stress vulnerability and resilience (Isingrini et al., *Nature Neurosci.*, 2016), and another one on the characterization of a specific MAP kinase pathway module, i.e. phosphorylation of the transcription factor Elk-1 by ERK1 in depression in both human patients and animal models (Apazoglou et al., *Nature Med.*, 2018).

Dr. Giros has trained a large number of trainees in France and Canada, many of which are now independent researchers in neuroscience. He also places strong emphasis on “real” translational approaches and is closely involved with psychiatrists, here at the Douglas Research Center as well as worldwide, to decipher translational importance of basic science discoveries he has made.

Dr. Bruno Giros has made significant contributions to the field of neuropsychopharmacology and is a very worthy recipient of the 2022 Heinz Lehmann Award. Congratulations to Dr. Giros!

Dr. Gary Remington
2022 CCNP Medal

The 2022 CCNP Medal will be presented to Dr. Gary Remington at the 44th Annual Meeting of the Canadian College of Neuropsychopharmacology (Virtual). The CCNP Medal, sponsored by Pfizer Canada Inc., honours individuals for a meritorious career in, and outstanding contribution to, neuropsychopharmacology in Canada as evidenced by their activities in education, administration and/or patient care.

Dr. Remington is currently a full professor in the Department of Psychiatry, University of Toronto, with a cross appointment in the Department of Psychological Clinical Science. His PhD focused on a rodent model for hyperkinesia, specifically examining neurodevelopmental changes in catecholaminergic and cholinergic pathways. Following his MD and an internship focused on Internal Medicine, he shifted to Psychiatry and immediately became interested in schizophrenia and its psychopharmacology.

His residency in Psychiatry was completed at the University of Toronto, ending as Chief Resident at the Centre for Addiction and Mental Health (CAMH), then the Clarke Institute of Psychiatry. He transitioned to clinician investigator at CAMH, working in the Schizophrenia Division and taking on the Chief role 2016-2019. Following approximately 10 years of inpatient work, he set up an outpatient clinic focused on medication related issues specific to schizophrenia. The intent was to integrate clinical care and research spanning diagnosis, treatment, and side effects. In this context, the clinic expanded to include a focus on clozapine upon its approval in Canada and a metabolic focus in the early 2000's as these issues took on a greater presence in association with 'atypical' antipsychotics. The clinic has seen a steady flow of research and education, with trainees from around the world seeking clinical and/or research training there. As well as preclinical and clinical lines of research focused on psychopharmacology, the work has dovetailed with imaging and genetic research also being pursued at CAMH.

External funding has been continuous over the last 25 years, currently as a 5-year CIHR. He has 490 publications (h-index 66), 1 book (co-editor), and 24 book chapters.

Dr. Remington's work is known internationally and certainly has influenced the field and academic careers of numerous trainees, me included. Reflecting this, he has been ranked amongst the top 3 schizophrenia experts in the world (<http://expertscape.com/ex/schizophrenia>), led the most recent Canadian Psychiatric Association guidelines on the pharmacological treatment of schizophrenia (Remington et al. 2017), and contributed significantly to the guidelines for individuals at clinical high risk of psychosis (Addington et al. 2017). His career has focused on the psychopharmacology of schizophrenia, and to address his contributions I shall take a chronological approach that isolates 3 lines of his research - 1) Antipsychotics/Dosing 2) Antipsychotics/Metabolic Side Effects, and 3) Clozapine/Treatment Resistance - positioning each in the context of the field (selected references included).

1) Antipsychotics – Dosing: He came on faculty at a point where schizophrenia research had stalled. Dopamine D2 occupancy was seen as critical to the action of antipsychotics, but as a class these agents were burdened by extrapyramidal side effects (EPS). Atypical antipsychotics had not yet entered the market and clinicians had resorted to antipsychotic polypharmacy and use of high doses to address treatment resistance. The advent of the newer agents originally hinged on the dopamine-serotonin hypothesis, and he and Dr. Shitij Kapur wrote a seminal article on this topic at that time (Kapur and Remington 1996). PET work from this same group led to a series of articles that collectively demonstrated: (i) a relationship between D2 occupancy and clinical response as well as EPS, (ii) adequate dopamine D2 occupancy despite suboptimal clinical response, and (iii) differences in D2 activity between atypical agents (Remington 2003). This last point set the stage for subtyping atypicality in D2 activity between atypical agents (Remington 2003). This last point set the stage for subtyping atypicality pharmacologically and highlighting clozapine's unique clinical profile, which was at odds with the initial position that atypical antipsychotics were similar and paralleled clozapine's efficacy in treatment resistant schizophrenia (TRS) (Remington and Kapur 2000).

Clinical neuroimaging as well as in vitro work served to underscore distinct differences between antipsychotics in terms of D2 binding. Based on these new pharmacological insights, Dr. Remington

revisited the topic of antipsychotic dosing, hypothesizing that high and sustained D2 occupancy is not necessary to sustain antipsychotic response. He proposed a clinical option that he coined 'extended' antipsychotic dosing i.e., fixed medication gaps. Two smaller clinical studies, one supported by NARSAD (National Alliance for Research on Schizophrenia and Depression), have supported this line of work and his current 5-year CIHR directly addresses this question in a controlled, double-blind trial involving 125 subjects. This work provided the impetus for a review he published on antipsychotic dosing in conjunction with CCNP's Innovations in Neuropsychopharmacology Award in 2012. (Remington et al. 2005, Remington and Kapur 2010, Remington et al. 2011) It is worth pointing out that this topic has taken on increased importance as the field currently debates the potential negative consequences of long-term continuous antipsychotic treatment.

2) Antipsychotics – Metabolic Side Effects. The newer 'atypical' antipsychotics proved beneficial from the standpoint of EPS, the primary objective in their development. However, by the early 2000's it became apparent that as a class these drugs carried an increased liability for weight gain and associated metabolic disturbances, catching the field off-guard. Initially, weight gain and associated metabolic side effects were yoked; that is, the weight gain associated with these drugs was felt to account for the metabolic sequelae. Having done preclinical work for his PhD, Dr. Remington moved to a rodent model to better understand the underlying pathophysiology and in a series of publications established that the effect of atypical antipsychotics on glucose dysregulation was evident with chronic antipsychotic administration (Chintoh et al. 2008) but, more importantly, could be observed acutely i.e., within 3 hours of drug administration (Chintoh et al. 2008, Chintoh et al. 2009). This work emphasized the importance of examining weight gain and metabolic issues separately, also putting into context aspects of the topic that were difficult to reconcile e.g., diabetic ketoacidosis early in treatment and in the absence of weight gain (Guenette et al. 2013). His laboratory and its collaboration with other specialty areas e.g., diabetes, physiology, neuroimaging, positioned it as a training ground for individuals, including myself, who have subsequently taken on academic positions and devoted their careers to work in the same area. This, in turn, has translated to subsequent projects that have gained substantial external funding and advanced the field considerably e.g., effects of antipsychotics on brain insulin action, the role of insulin dysregulation on cognition.

3) Clozapine and Treatment Resistance The third theme I wish to speak to is his work specific to schizophrenia and treatment resistance. He began the first clozapine clinic in Ontario at CAMH, which now is the largest such clinic in Canada with approximately 750 patients registered. It positioned itself as an important training ground for both clinical care and research. For example, a PubMed search under Dr. Remington's name identifies over 100 articles linked to clozapine, with investigations that include mechanisms of action (Kapur et al. 1999), efficacy (Rajji et al. 2015), and adverse events (Lee et al. 2015). Work of this sort is critical given clozapine's unique role in treatment resistance i.e., the only drug approved for use in TRS, and its marked underuse secondary to safety concerns. Moreover, Dr. Remington has used this platform to expand knowledge regarding clinical subtyping of schizophrenia based on treatment response, which has important implications in terms of future drug development. (Farooq et al. 2013) Like with other lines of work, the clozapine clinic has inspired other scientists such as myself to work in this area; the clinic is now home to several clinical trials as well as retrospective reviews that have the potential to change clinical practice and the way we approach clozapine.

Dr. Gary Remington is undoubtedly a most deserving and worthy recipient for the 2022 CCNP Medal. Congratulations to Dr. Remington!

Dr. Gabriella Gobbi
2022 Innovations in Neuropsychopharmacology Award
Recipient

The 2022 Innovations in Neuropsychopharmacology Award will be presented to Dr. Gabriella Gobbi at the 44th Annual Meeting of the Canadian College of Neuropsychopharmacology (Virtual). The Innovations in Neuropsychopharmacology Award, sponsored by Pfizer Canada Inc., is presented annually for work done primarily in Canada by Canadian scientists.

Dr. Gabriella Gobbi is a Professor in the Department of Psychiatry, McGill University and holds the Canadian Research Chair in Therapeutics for Mental Health (Tier 1).

Dr. Gobbi leads a laboratory of basic science (Neurobiological Psychiatry Unit), and works as a Staff Psychiatrist at the Mood Disorder Clinic of the McGill University Health Center. Her research approach spans from bench to bedside, bridging the gaps between fundamental and clinical research.

Dr. Gobbi received her MD (1991) and her specialty in Psychiatry and Psychotherapy (1995) from the Catholic University of Rome (Italy). She also earned a PhD in Neuroscience at the University of Cagliari (Italy) and finalized a post-doc at McGill University (Montreal, Canada) in 2001.

Dr Gobbi's laboratory is interested in understanding the pathophysiology of mental diseases and discover new treatments and cures for them.

- i) Her laboratory is studying the short- and long-term effects of cannabis use in mood and anxiety, and the potential beneficial effects of the drugs acting on the endocannabinoid system (endogenous cannabis) in the cure of mental diseases.
- ii) Her laboratory also discovered and patented novel selective agonists of the melatonin MT1 and MT2 receptors for pain, insomnia, and anxiety.
- iii) More recently, she published and patented research unveiling the mechanism of action of LSD in social anxiety and post-stress anxiety.

Dr. Gobbi is author of more than 110 highly cited manuscripts in high impact journals, 20 book chapters, one book and inventor of international patents in psychopharmacology. Her research is highly financed by governmental agencies and private sector; In recognition of her achievement she was awarded with the Canadian College of Neuropsychopharmacology (CCNP) Young investigator Award in 2012, the Venezia Prize in 2015, the Samarthji Lal prize in 2017, and the McGill University Principal's Prize for Media Engagement in 2019.

A trilingual speaker, she has been invited to present her work at conferences around the world and has served as reviewer/editor for many journals, international grant agencies in Europe and USA. Dr Gobbi served as an expert witness for the Canadian Senate (2012), the Ministry of Health (2019) and the Ministry of Justice (2019) of Quebec for the cannabis legislation, her studies on cannabis have influenced policies raising the age of cannabis consumption from 18 to 21 year-olds in Quebec and banning the advertisement of cannabis.

CANNABIS AS A MEDICINE: FAAH inhibitors and CBD

Our brain produces its own endogenous cannabinoids. These endocannabinoids are small lipids produced on demand during stress and inflammatory states. Dr. Gobbi's laboratory was the first to demonstrate that decreasing brain endocannabinoid catabolism through FAAH inhibition can promote both antidepressant-like behavioral effects and increased serotonin and norepinephrine transmission in laboratory animals (Gobbi et al., 2005; Bambico & Gobbi, 2008). These FAAH inhibitors have reached the clinical phase for the treatment of PTSD, pain and cannabis use disorder. Similarly, Dr Gobbi's laboratory has also demonstrated that mice with the genetic blockage of FAAH exhibit an antidepressant-like phenotype (Bambico et al., 2010). Following the legalization of cannabis in October 2018, two main components of cannabis, delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD), became more widely available for Canadian adults. This has led to the increased use of CBD to treat many conditions, including anxiety, pain, depression, bipolar disorders, and more despite a lack of strong clinical evidence supporting it. To address this, Dr. Gobbi's

laboratory provided the first proof-of-concept evidence in an animal model for using CBD in chronic pain (De Gregorio et al.2019), and is now studying effects of CBD on pain-related insomnia.

UNVEILING THE ROLE OF MELATONIN RECEPTORS

Melatonin is an essential neurohormone thought to regulate sleep, circadian rhythms, mood, pain, and immunological function. Although it was isolated more than 60 years ago, little was known about its neuropharmacology or its two receptors, MT1 and MT2. Dr. Gobbi's laboratory has played a key role disentangling the function of each receptor and, moreover, has developed and patented selective drugs for both MT1 and MT2. Moreover, in collaboration with an international team of chemists and pharmacologist, Dr. Gobbi has developed a new class of selective melatonin MT2 receptor agonists (Rivara et al., 2007; Rivara et al., 2009). These agonists have high selectivity for MT2 vs. MT1 receptors, in contrast to all marketed melatonergic drugs. This novel class of drugs, known as "melatonin MT2 partial agonists," can treat insomnia (Ochoa-Sanchez et al., 2011; Ochoa-Sanchez et al., 2014) and chronic pain (Lopez-Canul et al., 2015). These novel MT2 agonists also show promise for the treatment of pain making them a first-in-class mechanism of analgesic drugs. They have a unique profile for treating neuropathic pain and fibromyalgia during the day and insomnia associated with pain at night. Moreover, Dr. Gobbi's group has discovered that the MT1 and MT2 receptors have highly specialized functions (Gobbi & Comai et al., 2019), including opposing effects (Lopez-Canul et al., 2019). Overall, these novel drugs represent a truly unique class of hypnotics and analgesics, and several international patents have been successfully filed. This innovative research led to the creation of a start-up company (Cosmas Therapeutics) devoted to the development of treatments for pain and insomnia. Dr. Gobbi obtained close to \$6M for this research, and the lead compound is presently in Investigational New Drug (IND)-enabling toxicology with the IND submission to start Phase 1 trials in humans following in 2022. This work represents one of the few drug-discovery projects entirely developed at the academic level in Canada, from bench to humans.

MECHANISM OF ACTION OF PSYCHEDELICS

In the last few years, a renewed interest in psychedelics has occurred both in the popular imagination and in science. Several clinical trials have demonstrated the clinical efficacy of psilocybin in depression, addiction, and PTSD. Similarly, MDMA use in assisted psychotherapy is gaining credibility for the treatment of PTSD. Ketamine and esketamine have been approved for the treatment of resistant depression. Despite this progress, the mechanism of action of psychedelics remains unknown. To address these questions, Dr Gobbi's laboratory started investigating the mechanisms of action of psychedelics as early 2014, well ahead of the field. She first demonstrated the distinct action of LSD on serotonin and dopamine systems. In brief, whereas LSD "micro-doses" act only on 5-HT firing activity, higher doses modulate dopamine cell firing (De Gregorio et al., 2016). Moreover, her laboratory has demonstrated that low doses of LSD show promise for improving social function both in social phobia and in autism potentially through an augmentation of mPFC glutamatergic neurons (De Gregorio et al., 2021). Perhaps related to these effects, low doses of LSD also prevent stress-induced anxiety through a potentiation of serotonin neurotransmission (De Gregorio et al., under review in *Neuropsychopharmacology*). Complimenting this line of work, extensive work was published in *Nature* that better clarified ketamine's mechanism of action (Aguilar-Valles et al., 2021). Finally, in-depth reviews have been recently published on the mechanism of action of psychedelics (Inserra et al, 2021, De Gregorio et al., 2021).

Dr. Gabriella Gobbi is an undoubtedly most deserving and worthy recipient for the 2022 CCNP Innovations in Neuropsychopharmacology Award. Congratulations to Dr. Gobbi!



April 29, 2022

RE: CCNP Membership

Dear Colleague,

The Canadian College of Neuropsychopharmacology (CCNP) invites you to become a member of this cutting edge and rapidly adapting organization!

The CCNP was founded in 1978 and held its inaugural meeting held at St. Mary's Hospital in Montreal that same year. At this first meeting, Yvon Lapierre was elected the first President of the CCNP. A constitution and by-laws were prepared, and those attending this first meeting were named Founding Fellows. The aims established by the College were a) to provide a forum for clinical and basic science researchers to discuss and exchange ideas and experience in neuropsychopharmacology and to promote development of this science nationally and internationally, and b) to be a liaison body to educational institutions, the public, industry and government organizations as well as other related scientific bodies in order to promote education, research and treatment in this field. A recruitment drive was initiated, and arrangements were made for the second meeting at McMaster University in Hamilton for the following year.

The College has proved to be a great success story, and the ever increasing membership attests to this. Annual meetings have been held in Montreal, Edmonton, Hamilton, Toronto, Quebec City, Saskatoon, London (Ontario), Halifax, Vancouver, Ottawa, Banff, Toronto, Cambridge, England (two joint meetings with the British Association for Psychopharmacology – BAP) and Marrakesh (joint meeting with the French Association for Biological Psychiatry). In addition to the joint meetings mentioned above, joint meetings have also been held: (a) with the BAP in Montreal and Banff; (b) with the Japanese Society for Neuropsychopharmacology (JSNP) in Vancouver and Banff. More recently, we held our first virtual annual meeting; it was very well attended and offered presentations by invited speakers representing diverse disciplines as well as by our 'Next Generation' trainees.

For summaries of recent annual CCNP meetings visit the official journal of the CCNP, the Journal of Psychiatry and Neuroscience (JPN) (Free access at www.cma.ca/jpn). **Annual CCNP membership dues are \$150 for Fellows and \$25 for junior members and retirees.**

JPN, which is the official journal of the CCNP, has an impact factor of 6.19 (2020 ISI data) and is now ranked #25 out of 156 psychiatric journals and #51 out of 273 Neuroscience journals, making it the highest ranking open access journal in biological psychiatry.

We hope you will consider joining the CCNP either as a Fellow or as a Junior member. Please visit our website <http://www.ccnp.ca> and register now. We look forward to seeing you and hearing about your research at our next annual meeting!

Sincerely,

Dr. Cecilia Flores
CCNP Vice President