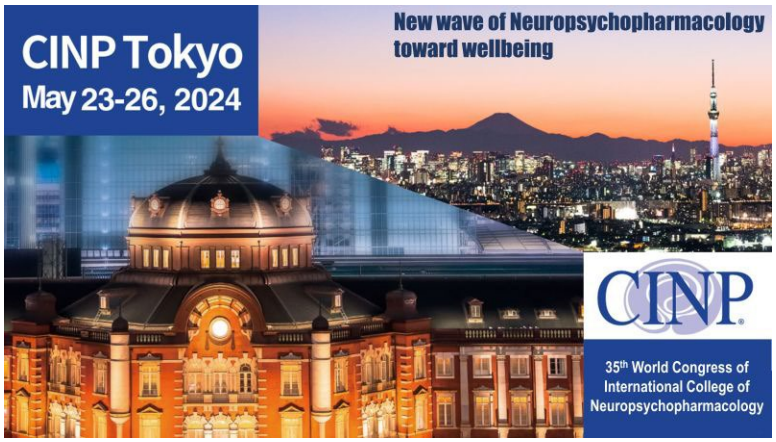
alamaya
fondation pour la recherche sur la schizophrénie

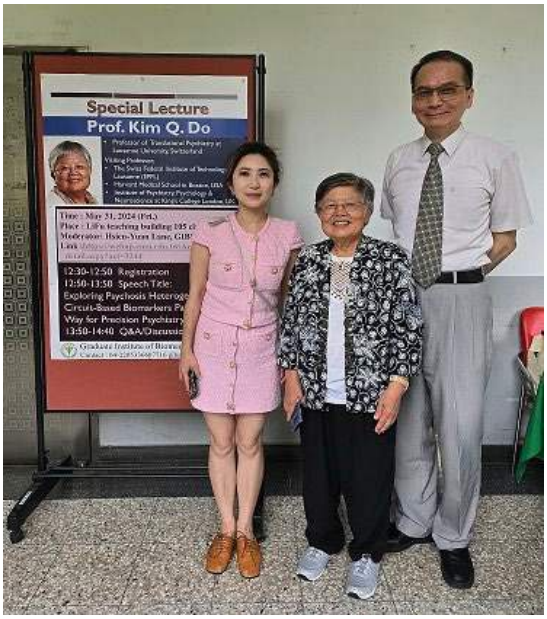
NEWSLETTER 2024

In 2024, Kim Do Cuénod was invited to give lectures and participate in symposia at numerous international conferences and institutions, some examples of which are listed below.



At the end of May, she travelled to Tokyo to attend the **35th World Congress of the International College of Neuropsychopharmacology** (CINP), held in conjunction with the 54th Annual Meeting of the Japanese Society of Neuropsychopharmacology (JSNP) and the Japanese Society of Clinical Neuropsychopharmacology (JSCNP). The congress took place at the Tokyo International Forum and was attended by over 2,500 scientists from all over the world. Kim Do Cuénod took part in two symposia and chaired an awards ceremony for young researchers. As a member of the CINP Council, she also took part in the College's Executive Committee meeting and Presidential Dinner.

Following the CINP congress, Kim Do Cuénod travelled to Taiwan, where she was invited to give two lectures, the first at **Taipei Medical University** and the second at **Taichung Medical University**. She was warmly and generously received by the staff of both institutions, who considered her visit a great honor.



Her lectures focused on the translational research program she has developed, targeting early detection and intervention in schizophrenia as well as the identification of biomarkers that account for the dysfunction of neuronal circuits, enabling improved patient stratification, personalized treatment and monitoring of disease progression.

On the European level, Kim Do Cuénod was invited to take part in two major events:

Ernst Strüngmann Forum : The Forum facilitates the expansion of knowledge by providing an open environment for researchers to examine priority issues from different angles. The overall aim is not necessarily to reach consensus, but to identify gaps in current knowledge. Once these gaps have been identified, means are proposed to fill them and promote future research.

BAP Summer Meeting : The 50th annual meeting of the British Association for Psychopharmacology (BAP) took place in July 2024 at the University of Birmingham. Kim Do Cuénod participated in a symposium on the prospects for future effective treatments against schizophrenia, jointly with researchers from King's College London and Berlin's Charité Hospital, two world-renowned institutions.

On the media front, Kim Do Cuénod gave an interview for the scientific journal **Brain Medicine**, published by the American editing house **Genomic Press**. The interview was the subject of a press release on the EurekAlert platform, operated by the **American Association for the Advancement of Science** (AAAS).

A publication on this platform generates high visibility for the following reasons:

1. EurekAlert is widely recognized as a premier source for scientific news.
2. It has a vast reach, with nearly 12,000 registered reporters from 90 countries.
3. The platform serves as a crucial resource for both journalists and the public interested in cutting-edge scientific developments.

EurekAlert has published the press release in 4 languages: English, French, Japanese and Chinese. The English version can be downloaded via the following link:
https://www.eurekalert.org/news-releases/1057144

Press release title : **Renowned neuroscientist Dr. Kim Q. Do unveils novel approach to schizophrenia treatment – University of Lausanne researcher discusses groundbreaking work on mitochondria-targeted antioxidants in exclusive Genomic Press interview**

Download the interview :
https://bm.genomicpress.com/wp-content/uploads/2024/03/BM0025-Do-2024.pdf

News from Research

Clinical Trial with MitoQ

As explained in the newsletter 2022, the clinical trial with MitoQ had to be reorganized and rescheduled due to administrative issues involving SwissEthics and SwissMedic. As a result, the following points were explored and implemented:

As the **clinical part of the study** (recruitment and follow-up of patients, taking of MitoQ by patients) cannot be performed in Switzerland, it will be carried out in collaboration with research groups abroad. Kim Do Cuénod visited the United States twice and met colleagues from **Harvard and Yale Universities** who were very interested in participating in the study. These meetings were extremely fruitful. It has been agreed that the clinical part of the trial will take place in the United States, and will be conducted jointly by researchers from the above-mentioned universities. During her travels, Kim Do Cuénod was accompanied by her colleague Dr. Ines Khadimallah, who played a key role in the design of the trial and will be fully involved in its implementation.

Intense preparatory work was carried out in 2023 and 2024. A large number of long and complex procedures are required for any clinical study involving patients and taking place jointly at several sites.

Ines Khadimallah, research associate, and a laboratory technician developed and validated the **analytical methods for including only patients at high risk of psychosis (HR) in the study**. They trained the American researchers to collect and process patient blood samples at both the Harvard and Yale sites, and to implement the blood exosome analysis, which will be done at the Harvard site. Following this analysis, the raw data will be transferred to the Lausanne site, where they will be interpreted in order to communicate, within 24 hours, the information required for the inclusion of HR patients to the clinical sites.

The coordination of the study and the analysis of blood samples from patients taking part in the trial will be carried out at the **University of Lausanne** in Switzerland, under the responsibility of Kim Do Cuénod. One of the main goals will be to detect the presence of specific biological markers associated with schizophrenia (called miR-137 and COX6A2), allowing to identify patients who respond best to treatment with MitoQ (precision medicine).

These biomarkers were discovered by Dr. Ines Khadimallah in the context of the studies directed by Kim Do Cuénod at the Center for Psychiatric Neuroscience (Lausanne University Hospital – CHUV). The monitoring of these biomarkers during and after the clinical trial is very important to demonstrate that MitoQ has reached the therapeutic target (mitochondrial abnormality in parvalbumin neurons) and to **develop new therapeutic approaches**. The aim is to elaborate an **individualized treatment** for psychosis, an **essential innovation** in the field of psychiatry.

As a reminder, MitoQ is an antioxidant specifically targeted at mitochondria, which provide the energy essential for the proper functioning of neurons, in particular parvalbumin interneurons (PVI); these interneurons play a key role in cognitive, affective and social activities, and are damaged in the brains of patients suffering from schizophrenia. MitoQ is a **safe drug with no side effects**, and penetrates easily into the brain and neurons. It is already on the market and administered orally.

The clinical trial aims to test the effect of oral administration of **MitoQ** on **neurocognition**, **psychiatric symptoms**, **functioning**, and **exosome levels of the biomarkers** miR-137 and COX6A2 in high-risk individuals in the early phase of schizophrenia spectrum disorders.

The objectives are to:

- Improve cognition, which is not treated by current antipsychotics
- Improve negative symptoms (deficits in language, communication, emotions), which are not well treated by current antipsychotics
- Improve overall functioning, as a consequence of improved cognition and negative symptoms
- Reduce the risk of relapses
- Reduce the dosage of antipsychotics

The trial has concretely begun in October 2024 (first patients recruited), and will be implemented over a period of 3 to 4 years. The Alamaya Foundation has to provide most of the funding for the part of the clinical trial taking place in Switzerland.

This trial represents the outcome of pioneering, long-term experimental studies, and paves the way for a **breakthrough in the treatment of psychiatric disorders**, bringing highly significant benefits at human, social and economic levels.

COGNITIVE DEFICITS IN INDIVIDUALS AT HIGH CLINICAL RISK OF PSYCHOSIS

The Alamaya Foundation is supporting a project conducted by Dr. Ines Khadimallah, a long-standing collaborator of Kim Do Cuénod, focusing on the **early detection of cognitive deficits in people at risk of developing schizophrenia**.

According to the World Health Organization, mental disorders affect 13% of the world's population. This figure exceeds the prevalence of heart disease and cancer combined. **Up to 75% of mental health problems occur before the age of 24**.

Young people may begin to experience signs of psychosis risk months or even years before they are diagnosed, which affects their ability to perform age-appropriate tasks during important periods in their development. These early signs can include cognitive deficits such as difficulties in thinking, concentrating and/or using working memory in everyday tasks at home, work or school. Such disorders are described as **"high clinical risk"**, meaning that individuals who present these symptoms may be at increased risk of developing schizophrenia later on.

Early detection and intervention in cases of high risk are linked to better long-term health, since they help clinicians to better diagnose and treat people before their symptoms worsen. However, due to the heterogeneity of clinical symptoms, there is a need for biomarkers based on mechanisms that account for the dysfunction of neural circuits, enabling improved individual stratification, monitoring of disease progression, and refinement of care and treatment.

Dr. Khadimallah's study is therefore focused on **identifying biomarkers based on brain mechanisms of cognitive impairments in people at high clinical risk**, which could help **predict and ultimately prevent severe cognitive deficits**.

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