



STRAS&ND

Center of Excellence for Autism and
Neurodevelopmental disorders / Strasbourg

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Strasbourg Translational Research on the Autism Spectrum & Neurodevelopmental Disorders



STRAS&ND is one of five centers accredited as Centers of Excellence (CEX) for autism and neurodevelopmental disorders between 2019 and 2020.

As part of France's national strategy for neurodevelopmental disorders, the main missions of the CEXs are to:

- amplify the research dynamic and accelerate the dissemination of knowledge to all those involved
- make training a priority in order to disseminate best practices among professionals and stakeholders.

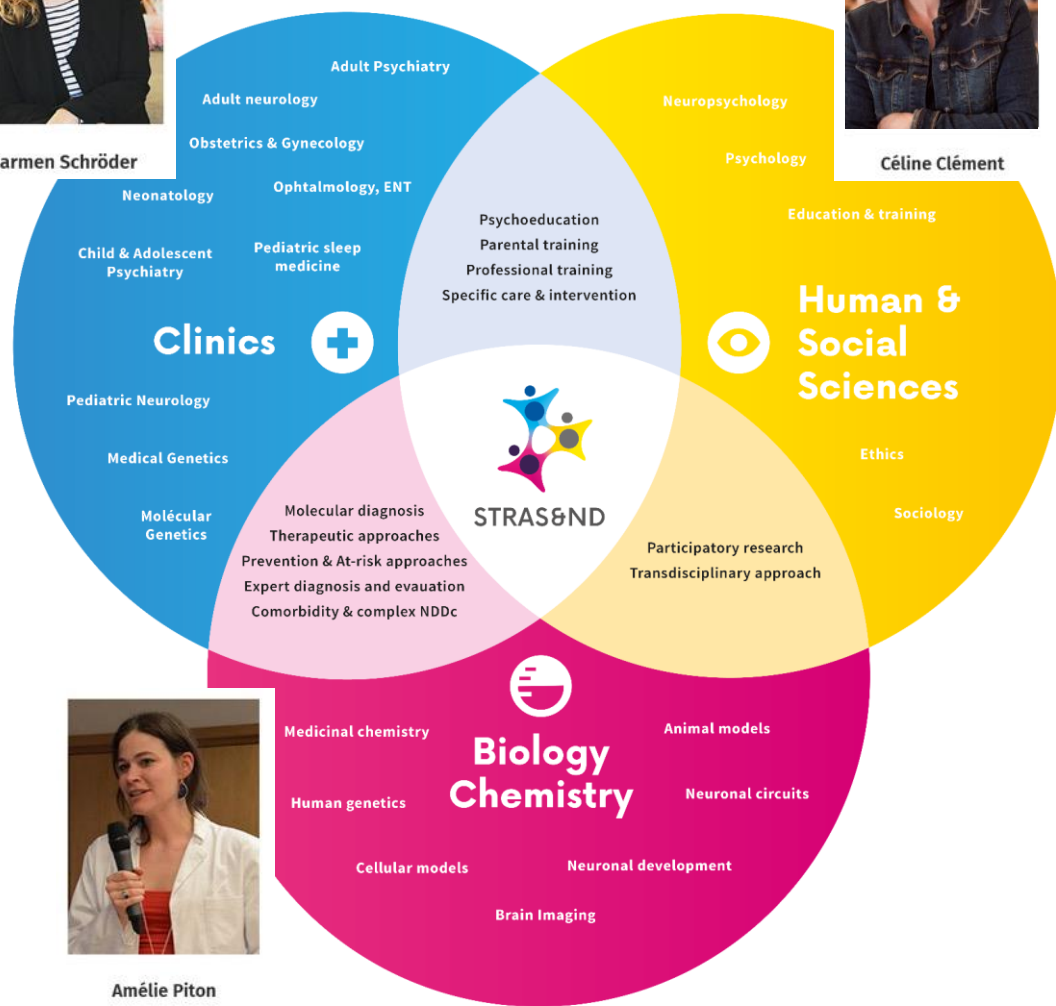
STRAS&ND



Carmen Schröder



Céline Clément



Amélie Piton

Stras&ND is made up of over 30 research teams and clinical departments.

It is organized into 3 main divisions, headed by Prof. Carmen Schroder (Clinics), Dr. Amélie Piton (Biology and Chemistry) and Prof. Céline Clément (Human and Social Sciences).

STRAS&ND brings together expert teams from different fields from medicinal chemistry to human genetics, genetic model organisms, neurosciences, developmental and experimental psychology or brain imaging working in recognized Strasbourg institutes or research units.

The network's strength lies in the cross-disciplinary nature of its 3 divisions.

Research at STRAS&ND: Clinics



STRAS&ND teams have core clinical expertise in ASD and the entire spectrum of NDDs as well as their common comorbidities (genetic disorders, sleep disorders, epilepsy) across comprehensive functional dimensions, covering the lifespan from newborns to adults, and across multiple disciplines (psychiatry, (neuro)pediatrics, medical genetics, neonatology, neurology, sleep medicine). Several of our expert diagnostic teams are certified expert or reference centers (e.g. Expert Center for Autism Spectrum Disorders without intellectual disability; reference centers for rare genetic disorders with psychiatric expression, for intellectual disability, for rare epileptic disorders...).

These clinical services and networks work together to implement novel interventions and participate in pharmacological trials and non-pharmacological treatment protocols. They also coordinate and participate in national (PHRC, ANR) or international clinical trials.

The main clinical objectives are:

- expansion of preventive and at-risk approaches,
- refinement of paradigms for comorbid and complex NDDs, systematically integrating genetic as well as sleep and circadian rhythm assessments into care and research programs, and
- progress of its current participatory research modalities.

See members of the clinics departement [HERE](#)



Research at STRAS&ND: Biology and chemistry

STRAS&ND brings together expert teams from different fields from medicinal chemistry to human genetics, genetic model organisms, neurosciences, developmental and experimental psychology or brain imaging working in recognized Strasbourg institutes or research units.

In close collaboration with clinical and hospital services, they are developing synergies to better understand and manage NDDs by:

- 1) identifying the genetic factors involved (> 20 new genes identified in 2015-2020) and developing strategies for differentiating pathogenic from non-pathogenic variants,
- 2) developing cellular and innovative animal (zebrafish, mice, rat) models to understand the consequences of genetic abnormalities (and environmental factors i.e valproate) at molecular, structural (brain structure), and behavioral levels.
- 3) These models are used for the development of innovative therapeutic approaches for frequent genetic forms of NDD (trisomy 21, fragile X syndrome) or for ASDs (targeting the oxytocin receptor). The teams are also interested in better understanding all the manifestations of NDD and other comorbidities affecting health and quality of life and their lifespan trajectory,
- 4) cognitive science research in humans, participatory research projects (GenIDA), and animal model studies. teams coordinate and participate in numerous national and European studies and networks

See members of the Biology and Chemistry laboratories [HERE](#)

Research at STRAS&ND: Human and social sciences



STRAS&ND has developed an expertise in the development, implementation, evaluation of psychoeducational programs, in line with HAS (French health authority) guidelines, for autistic people and NDDs and their families. One of the original features is the concern for the social validity and acceptability of the interventions. This aspect is reinforced by the participatory dimension of research.

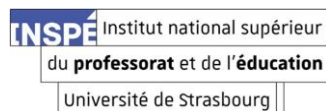
Within the Faculty of education and lifelong learning (INSPE), clinical and academic services, are interested in the educational inclusion.

Research based on social and developmental psychology, and educational sciences, has made it possible to specify the profile of teachers most at risk of burnout and the needs of teacher training when including students with autism. Original research specified the criteria for evaluating a successful transition to secondary school, according to the point of view of the various actors (adolescents, parents, teachers).

Among the future perspectives are :

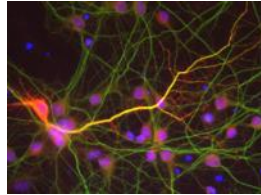
- questioning the social and ethical dimension of diagnoses for autistics and NDD people, in conjunction with clinical and genetic diagnostic teams
- evaluating the school inclusion processes in connection with teacher training and supervision
- transversal projects on cognitive disorders and stigmatization with the expertise of the participating teams in cognitive and social psychology.

See members of the Social Sciences laboratories [HERE](#)



STRAS&ND's scientific publications:

Since 2010, Stras&ND teams have published over 400 international articles on autism and neurodevelopmental disorders.




See STRAS&ND publications [HERE](#)

Innovation at STRAS&ND

Several innovative translational research projects, developed within the teams of center are being transferred to the socio-economic world (several patents and maturing projects supported by SATT Conectus Alsace), such as gene therapy approaches (Fragile X syndrome) or pharmacological global (ASD, with oxytocin agonist) and specific targeted (Fragile X syndrome) therapeutic approaches.

Clinical services are also involved in several international phase III clinical studies, especially for autism (bumetanide, melatonin) and epilepsy (e.g. cannabidiol). Tools to improve the molecular diagnosis: genomic tools and functional tools to ameliorate identification and interpretation of genetic variations in NDDs were developed in research teams and have been then successfully implemented in diagnosis routine practices at hospital. In parallel, numerous scales and questionnaires, aiming at ameliorating the clinical diagnosis and the management of NDDs have also been developed by or with teams of STRAS&ND.

Creative therapeutic education and psychoeducation programs, intended to be set up for people with ASD & NDD (adults, adolescents and children) and their families, have been elaborated, in close collaboration with them and the clinical services, in order to be more relevant. The teams improved together their expertise in program implementation in accordance with gold standards.



Training at STRAS&ND

STRAS&ND leaders have a track-record of ensuring dissemination of knowledge on autism and NDD through initial and continuing training of professionals in charge of people with ASD and NDD and their families.

In Strasbourg University, the courses cover all disciplines of (pharmacology, psychiatry, genetics, psychology, sociology, ethics, neurosciences, etc.). Initial training includes the 3 cycles of medical studies and the following master programs : Neurosciences and Biomedicine; Developmental Psychology; Speech therapy; Cognitive and Behavioral Therapy; Education; Inclusive Education; Therapeutic Education; History, Philosophy sociology sciences mediation; International master Interdisciplinary Ethics.

Trainings coordinated in the ongoing professional education cover :

- University Degrees: "Autism", "Medicine, Meditation and Neuroscience"; Interuniversity diploma "ADHD" (with Lille & Lyon) and "Sleep" (national program);
- short training programs in psychoeducation "Parent training program in ASD", "Barkley Parent Training Program in ADHD".

Other trainings for professionals include Pediatric Autism Communication Therapy (PACT) within a network of centers (Lyon, Versailles, Strasbourg, Montpellier), as well as inclusive education for children and adolescents with ASD and other NDD for specialized teachers. Moreover, members of are involved in numerous university diplomas in France.

STRAS&ND: science for everyone

STRAS&ND also supports the objectives of disseminating scientific information to people with ASD or NDD, families, associations and the general public.

Our network of partners includes numerous user associations, with whom we collaborate on a variety of projects.

We are committed to offering a wide range of events to popularize science and encourage discussion around research into autism and neurodegenerative disorders (scientific meetings for families, film-debate evenings, webinars, etc.).



WEBINAIRE STRAS&ND #1

**Le camouflage autistique :
Le comprendre et le mesurer!**

Replay du 14/04/2024

Avec
Dr Raven BUREAU
Dr Romain COUTELLE
Pr Céline Clément

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*Strasbourg **T**ranslational **R**esearch on the **A**utism
Spectrum & **N**eurodevelopmental **D**isorders*

Centre d'Excellence Autisme et TND

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