

HUMBERT, Sandrine

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Nationality: **French**, Date of birth: **July 25, 1967**

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MAIN SCIENTIFIC CONTRIBUTIONS (1) Cloned and characterized one subunit of TFIID transcription factor, linking transcription and repair machineries (*EMBO J* 1994). (2) Established the role of the p39 neuronal activator of the kinase Cdk5 in cerebellar development (*J Cell Sci* 2000; *J Neurosci* 2001). (3) First to propose that domains outside the polyQ stretch within HTT can regulate its toxicity, indicating a key role of protein function in HD (*Dev Cell* 2002). (4) Characterized cellular functions of HTT protein in axonal transport, vesicular recycling and cell division (*EMBO* 2008; *EMBO J* 2010; *Neuron* 2010; *Neuron* 2017; *Cell Rep* 2020). (5) Identified potential therapeutic approaches based on restoration of HTT function (*JCI* 2006), leading to one clinical trial in HD (*Mov Disorder* 2014). (6) Demonstrated that loss of HTT and HTT mutation reduce breast cancer incidence but accelerate its progression (*EMBO Mol Med* 2013; *JNCI* 2015; *EJHG* 2016; *Neurology* 2017). (7) Showed that HTT regulates several steps of cortical development, which are altered in HD (*Neuron* 2010; *J Neurosci* 2014; *Plos One* 2016; *Neuron* 2017; *Neuron* 2022). (8) Demonstrated that HD affects human neurodevelopment (*Science* 2020).

EDUCATION

2003 Research Habilitation - HDR, Univ. Paris XI, France.

1996 Ph.D., Louis Pasteur University, Jean-Marc Egly lab, Strasbourg, France.

1991 Engineering degree in Biotechnology, ESBS, Louis Pasteur Univ., Strasbourg, France.

CURRENT POSITION

2014- **Group Leader** (approx. 14 scientists), **Grenoble Institute of Neurosciences (GIN)**, Inserm U1216, University Grenoble Alpes (UGA), Grenoble, France.

2010- Research director 1 (DR1), Inserm.

PREVIOUS POSITIONS

2009-2014 Group Leader, Institut Curie.

2002-2008 Senior scientist Inserm (F. Saudou), Institut Curie.

2000-2002 Postdoctoral fellow (F. Saudou), Institut Curie.

1996-1999 Postdoctoral fellow (L.H. Tsai), Harvard Medical School Boston, US.

SCIENTIFIC RECOGNITION

Publications: Total of 65 referenced in PubMed (1990-2018), with 57 peer-reviewed articles. Published senior-author articles in *Science*, *Neuron* (x3), *Cell Rep*, *EMBO Mol Med*, *JCI*, *Journal of the National Cancer Institute*, *Plos Biol*, *Neurology*, *EMBO J* (x3), *J Neurosci* (x4). Invited to contribute review in *Neuron*.

Citations: Total of >6,350 without self-citations. Average citation per item: 98; h-index: 39 (ISI WOS). 20 articles, of which 18 are original peer-reviewed, have >100 citations.

Invited talks and seminars: **Talks:** >40 at international conferences and meetings, incl. Society for Neuroscience, Gordon Conferences (x2), EMBO, ECNP, Cure HD Initiative US (CHDI). **25 seminars** at leading institutes and research centers in Europe and the US, incl. Dan Duncan Neurological Research Center Houston; EPFL Lausanne; University of Coimbra; VIB Leuven; Weizmann Institute, Israel.

Prizes and awards: (1) Dagnan-Bouveret prize of the French Science Academy (€5k, 2017); (2) Marie-Paule Burrus prize, Foundation for Medical Research-France (€25k, 2018). (3) France Foundation senior Prize (€100k, 2022). (4) INSERM Scientific Excellence annual award of €4k (PEDR, 2016-2020). These prizes recognized my contribution to the field of HD.

GRANTED PATENTS

1. US2011039789-A1; Inventor(s): **Humbert S**; Saudou F; et al. Diagnosing or detecting a cancer e.g. breast, prostate, lung, colon cancers or leukemia in subject (human), comprises determining the cellular level of phosphorylated form of huntingtin in a sample of the subject.

2. WO2010146055-A1; Inventor(s): Godin J; **Humbert S**; Saudou F. New antagonist of beta-catenin, which is a direct antagonist of beta-catenin, useful for preventing and/or treating a neurodegenerative disorder, e.g. Alzheimer's, Parkinson's, prion, or Huntington's diseases.

GRANTS OBTAINED (without PhD salaries): **Total of M€ 3.8**, including Association for Cancer Research (ARC), FRM (Foundation for Medical Research, team grant x3), French National Research Agency (ANR; x5), National Institute of Cancer (INCA) - France.

EDITORIAL AND REVIEWING DUTIES

Academic Editor: *PLOS One* (2011-).

Journal review (2003-): *EMBO Molecular Medicine; HMG; J Neurosci; Molecular Psychiatry; Nature Communications; Nature Medicine; Neuron; Neuropharmacology; Traffic.*

Grant review: Foundation for brain research (FRC, France); Telethon (Italy); WellcomeTrust (UK); French National Research Agency (ANR, France), Huntington Society (Canada).

CHAIRING AND ORGANISATION OF SCIENTIFIC MEETINGS

Chair/co-organizer of sessions at Society for Neuroscience (2008, 2015); French Society for Neuroscience (2017); Movement Disorder Society (2019).

Co-founder/co-organizer of the INSERM Workshop on cancer and neurodegenerative diseases (approx. 100 attendees; 2015); Research and clinical perspective Huntington Days (2019, 2020; approx. 150 attendees); European HD network (EHDN) plenary meetings (2019; 2021; diseases approx. 1000 attendees).

SCIENTIFIC COMMITTEES

2022-2026 Scientific Council member, INSERM.

2020-2025 Scientific advisory board of the Institute of animal physiology and genetics (IAPG), The Czech Academy of Sciences, Liběchov, Czech Republic.

2018-2022 Scientific Council president, French HD Association (AHF).

2017-2022 Review panel member, Parkinson Committee, Foundation of France.

2017 Review panel member, INSERM Scientific Excellence Committee (PEDR/PES).

2016-2022 Executive committee member of Euro HD network, EHDN.

2016-2021 Review panel member, Neurobiology Scientific Commission INSERM (CSS6).

2015-2020 Review panel member, UGA Chemistry, Biology, Health Committee.

2015-2019 President of GIN Ethics Committee for animal experimentation.

2013-2018 Scientific Council member, Association Huntington France.

2011, 2017 Research unit evaluations, French High Council for Evaluation of Research and Higher Education (HCERES)

2009-2014 Review panel member, Association for Cancer Research (ARC).

TEACHING AND SUPERVISION

Lecturer in well-ranked Master's programs of Institut Curie, Lyon, Paris and Grenoble Univ.: ~20hrs a year.

International advanced schools taught: Faculty of Medicine Coimbra Portugal (2004, 2010); Univ. of Buenos Aires (2012).

Current postgraduate supervision: 3 senior scientists, 4 postdocs, 3 PhDs.

Completed: 6 PhD and 8 postdocs (ARC, Ligue fellowships, FRM). All PhD and postdocs left the lab with high-standard publications (*Neuron, JCI, JNCI, PlosBiol, EMBO*). Several former PhDs and postdocs are in highly reputed labs (e.g. S. Garel - ERC-COG Paris, A. Kimmelman - Dana Farber Boston), obtained PI positions (IGBMC Strasbourg, Univ. of Southampton), competitive positions in industry (Agiros Pharmaceuticals) or at Inserm and French universities.

PhD thesis and habilitations committees: France and Europe, 3 to 5 a year.

MAIN ONGOING COLLABORATIONS

National: A Andrieux, I Arnal (GIN Grenoble, MT and actin cytoskeletons); E Barbier (GIN, Imaging approaches); A Buisson (GIN, Electrophysiological studies); A Durr (ICM Paris, HD clinical aspects); E Gilson (IRCAN Nice, Telomeres); F Saudou (GIN, HTT function/dysfunction). **International:** M Mapeli (IEO Milan, HTT interactors); JJ Song (KAIST Korea, HTT in vitro studies); S Zeitlin (Virginia USA, HTT mouse models).

PUBLIC OUTREACH ACTIVITIES:

(1) Lay presentation 'The moving neurons', Art and science cross talk initiative, Univ. Grenoble Alpes (UGA). **(2) Lay presentations** about Huntington Disease for the Rotary club (Macon, 2019; Chambéry, 2020); French HD Association (AHF; at least once a year since 2012); French Day of HD (La Villette, Paris, once every two years since 2013). **(3) Writing of lay HD basic science articles** for the AHF journal.