

Anne S. J. Lesage Ph.D.

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Summary

Anne Lesage initiated GrayMatters Consulting to support executives and managers in need of high quality scientific knowledge and advice related to neuroscience drug discovery and early clinical development projects.

Anne is a dynamic independent consultant and expert scientific advisor in pharmacology of the central nervous system. She is dedicated to provide rigorous neuroscience insights, profound drug discovery expertise, expert scientific analysis and evaluation, or a second opinion on a compound or project that is ready for phase transition, partnering, spinout, or funding.

Anne has 18 years experience in neuroscience drug discovery, and has in depth knowledge of molecular, cellular, and functional neurobiology as well as behavioral in vivo models, biomarkers and translational research. She has published over 40 peer reviewed papers on basic science and novel drug candidates targeted towards GPCRs and ion channels, signal transduction and allosteric modulation of metabotropic and ionotropic glutamate receptors, nicotinic receptors and various other targets.

Anne is a scientifically driven, rigorous neuroscience expert, passionate about the development of new medicines for the treatment of pain, psychiatric, neurologic and cognitive disorders.

Career progression

- Dec 2010-Present: Founder and Scientific Advisor at GrayMatters Consulting
- 1992-Nov 2010: Industrial career at Janssen Pharmaceutica NV
 - 2003-present: Senior member of Neuroscience Drug Discovery
 - 2001: Research Fellow
 - 1997: Principle Scientist
 - 1992: Senior Scientist
- 1989-1992: Academic training at Stanford University School of Medicine, CA
Post-doctoral research in Dept. Child Psychiatry
- 1987-1989: Academic training at Hospital Paul Brousse, CNRS, Paris, France
Post-doctoral research in Dept. Viral Oncology
- 1983-1987: Academic training at University Ghent
Ph.D. thesis in Dept. Molecular Biology

PROFESSIONAL EXPERIENCE

Janssen Research and Development, a division of Janssen Pharmaceutica NV, Belgium
Sept 1992-Nov 2010.

My main areas of research have been in the glutamatergic and nicotinic acetylcholinergic fields, and cognitive impairment in schizophrenia. I have had a special focus on allosteric modulation of targets through in vitro functional and radioligand binding tests. I have been intricately involved in the in vivo behavioural testing of novel drug candidates, with a strong focus on translational tests. Several of my major achievements have been reached through collaborations across departments or through partnering with academic labs.

Scientific and Managerial Responsibilities

Apr 2009 – Nov 2010

- ◆ Member of the Departmental Senior Leadership Team
 - Neuroscience department governance: strategy, portfolio management, resource management, collaboration management,, stage gate transitions.
- ◆ Functional coordinator for the Neuroscience in vitro team (18 people)
 - Communicate clear objectives
 - Ensure appropriate use of in vitro resources to support portfolio
 - Coordinate high throughput screening priorities
- ◆ Project leader (15 people)
 - Discovery biology team leader for a cross-functional team (in vitro pharmacology, electrophysiology, systems biology, in vivo biology).
 - Responsible for the identification and pharmacological characterisation of several neurotherapeutic compounds. 7 nicotinic receptor development candidates were identified, profiled in hippocampal slice electrophysiological tests and neurocognitive assays, including tests for executive and prefrontal cortical function
 - Managing external collaborations to support the profiling of clinical candidates in advanced cognitive models, i.e. attentional set shifting, delayed non-matching to sample in cynomolgous monkey, paired associates learning, etc...
- ◆ Member of the Target Identification and Validation team for schizophrenia and bipolar disorder
 - Reviewed the rationale for new targets to enter the portfolio for schizophrenia and bipolar disorder.
 - Proposed 3 targets (especially in the glutamatergic field) which were accepted for further validation experiments
- ◆ Representative in the Clinical Development Team
 - Served as target expert and provided research support for clinical compounds. This role is the crucial interface between the Drug Discovery and Early Development.

Previous Scientific and Managerial Responsibilities

- ◆ Head of Neuroscience Outsourcing and Collaborations Jan 2008 - Mar 2009
 - Established processes and procedures for the coordination and facilitation of compound outsourcing and research collaboration activities within the Neuroscience department. Built an infrastructure to support the planning, implementation and reporting of outsourcing studies
 - Created transparency in outsourcing activities and aligned them with the overall strategy
 - Created a highly efficient cross-functional group (data management, finance, statistics, contract writing) capable of integrating science with business needs.
 - Worked with key internal stakeholders to partner with academic labs and contract research organisations
 - Responsibility for market research, technical due diligence and identification/selection of preferred partners such.

- ◆ Biology Head Exploratory Research Jan 2007 - Jan 2008

New department established to explore alternatives to the single target HTS driven discovery approach by focusing on phenotypic screening and drug repositioning.

 - Developed research strategy and vision
 - Built strong partnerships with internal stakeholders and external CROs: scouting and identification of preferred partners
 - Established a highly efficient team with cross-functional capabilities in a matrix organisation
 - Created a broad screening platform (phenotypic, high content and in vivo)
 - Responsibility for the repositioning of 6 clinical compounds with external partners.
 - Championed projects to delivery novel antidepressants, anti-epileptics, neuroregenerative agents
 - Target expert and biology leader delivering 1 nicotinic acetylcholine receptor compound to the clinic

- ◆ Biology Head Psychiatry I Department Jan 2005 – Jan 2007
 - Responsible for a team of 28 biologists, with 6 direct reports
 - Responsible for discovery projects (in vitro and in vivo biology) for schizophrenia and bipolar disorder
 - Established an early target identification and validation process
 - Ensured a strong portfolio and steady output of new candidate drugs for schizophrenia and bipolar disorder
 - Implemented a translational science strategy, ensuring biomarker and imaging technologies were applied to drug discovery projects
 - Facilitated a closer interaction between the functional genomics representatives and psychiatry projects.
 - Partnered with key stake-holders in early and full development.
 - Began 5 early stage drug discovery projects in psychiatry, of which 1 delivered a compound to the clinic, 1 is in lead optimization and 1 recently re-entered the portfolio.
 - Transformed one lead optimization project with weak biology understanding and no prospect for further progress to a very strong project with novel insights in biology. Several clinical candidates were identified. This project delivered a final clinical candidate in 2008.

- Responsible for Neuroscience input into Due Diligence evaluations of in-licensing opportunities (about 7 opportunities evaluated per year)

◆ Responsibilities in Psychiatry I dept. J&JPRD

Apr 2001 - Jan 2005

1. Deputy for the department head
 - Stood in for the dept. head at discovery and licensing meetings, successfully served as representative of the department at advisory board meetings, helped shape a new operating model.
2. Head In Vitro Molecular Pharmacology group
 - Established an in vitro receptor pharmacology lab
 - Responsible for a team of 4 biologists + 3 students per year
 - Responsible for in vitro support of psychiatry projects: assay development and receptor pharmacology
 - Invested heavily in automation of compound handling, in vitro screening activities and automatisation and standardisation of data analysis and retrieval
 - Target expert in metabotropic glutamate receptor field
3. Project team leader
 - Leader of cross-functional teams responsible for delivering clinical drug candidates
 - Validation of novel targets such as mGlu1 in pain, anxiety and schizophrenia: partnering across therapeutic areas
 - Delivered 2 neurokinin antagonists to the clinic (2004)

◆ Responsibilities in Biochemical Pharmacology dept., JRF

Sep 1992 – Apr 2001

I was recruited by Josee Leysen, specifically to implement novel technologies such as signal transduction and primary cell culture. This initiated the switch from “traditional” radioligand based assays to high-throughput functional screening and was the basis for the Beerse campus being recognized as the leading high-throughput screening site for Johnson & Johnson worldwide.

1. Head In Vitro Molecular Pharmacology group
 - Responsible for a team of 9 biologists + 3 students per year
 - Responsible for the heterologous expression of neurotransmitter receptor targets, the development of in vitro assays, and establishment of screening campaigns
 - Introduced and established signal transduction screening at Janssen: cAMP, cGMP, NO, inositolphosphate, PLA2, intracellular Ca²⁺ screens
 - Established mammalian cell culture transfection methodologies for the heterologous expression of neurotransmitter receptors
 - Established primary culture models for the screening of neuroprotective agents: hippocampal, cortical, mesencephalic and dorsal root ganglion neuron cultures
 - Introduced ionotropic and metabotropic glutamatergic receptor targets
 - Introduced neurotrophic factor targets including p75, TrkB, GFRa3
2. Project team leader
 - Leader of cross-functional teams responsible for delivering clinical drug candidates for neurological indications including cerebral ischemia, Alzheimer’s disease, and Parkinson’s disease
 - Focus on glutamatergic targets: mGluR1, mGluR2, NMDAR glycine site, AMPAR
 - Exploration of oxidative stress protective agents and MAO inhibitors for Parkinson’s disease.

Examples of innovations

- 2008 Use of the translational CANTAB cognitive test battery in cynomolgous monkey to bridge the discovery findings with the clinic (3 years collaboration Maccine, Singapore; 2008)
- 2007 Identified and capitalised on tax incentives as a creative way to finance research collaborations in Singapore and Spain (Maccine, Biospain)
- 2005 Use of sensory gating as a translational marker to guide further clinical studies (collaboration K. Stevens, Univ. Colorado, etc...)
- 2003 The exploration of functional PET imaging as a way towards proof of concept: functional effect of neurokinin receptor antagonists on dopaminergic signalling in brain through 18-F-fallipride PET imaging in monkey (collaboration M. Laruelle, Columbia University)
- 2004 Initiation and driving of the Ph.D. and Post-doctoral club and manuscript sessions (2002-2004)
- 2002 Helped initiate the Women Leadership Initiative in Beerse
- Driving the communication task force (7 people): setting a communication strategy, developing communication materials (website, logo, brochure, ...)
 - Serving as global liaison: connecting and partnering with US initiative
 - Taking the role as mentor for women through the Sofia mentoring program
- 1996 Introduced and established the metabotropic glutamate receptor field and positive and negative allosteric modulator concept at Janssen
- 1993 Established functional high throughput signal transduction screening platforms

Coaching of students and supervisor of thesis work

1994 – 2003

- Hilde Lavreysen Ph.D. thesis Cum Laude Univ. Amsterdam- Enhancement of mGlu1 receptor signalling upon antagonist treatment (1999 – 2003).
- Sandrina Nobrega Graduate thesis Coimbra Univ., Portugal - Optimization and development of mGlu1 receptor autoradiography and ex vivo receptor occupancy studies (2002-2003).
- Catarina Cruz Graduate thesis Coimbra Univ, Portugal - Role of glutamate receptors in RGS gene expression: an in situ hybridization study (2002-2003)
- Ana Oliveira Graduate thesis Coimbra Univ., Portugal - Validation of Group I mGlu receptors as therapeutic target for psychiatric illnesses (2001-2002).
- Margarida Caldeira Graduate thesis Coimbra Univ., Portugal - Validation of Group I mGlu receptors as therapeutic target for pain (2001-2002).
- Tineke Willemoens Graduate thesis Free Univ. Brussels- mGlu1 receptor signalling under physiological conditions: a primary neuronal culture study (2001-2002).
- Heidi D'hondt Graduate thesis Free Univ. Brussels - Development of a GFP-mGlu1 construct: preliminary targeting/internalization and recycling study (2000-2001).
- Nathalie Van Acker Graduate thesis Free Univ. Brussels - Immunocytochemical and confocal microscopy analysis of mGlu1 receptor expression in primary neuronal cortex cultures (2000-2001).

Kelly Nuyts	Graduate thesis Free Univ Brussels - The role of mGlu1 receptor surface expression and intracellular re-localisation in antagonist-mediated enhancement of mGlu1 receptor signalling (2000-2001).
Nico Janssen	Graduate thesis Free Univ Brussels - Glutamate receptor subunit expression in primary neuronal and secondary glial cultures (1999-2000).
Hilde Lavreysen	Graduate thesis Free Univ Brussels - Characterisation of the rat and human AMPA receptor (1998 – 1999).
Organza Tanriseven	Graduate thesis Kings College, London - Receptor coupled signal transduction: fluorometric $[Ca^{2+}]$ measurements and receptor stimulated $[^{35}S]GTP\gamma S$ binding to G-proteins (1996 – 1997).
Amirta Johal	Graduate thesis Kings College, London - Evaluation of cell death and survival assays for the assessment of excitotoxicity in primary neuronal cortex cultures (1996 – 1997).
Additional supervision of over 20 college students (1994 – 2000).	

Teaching

Glutamate receptors: nitric oxide and neurotoxicity. Theory and practicum course. June 18-July 2, 1994. Center of Neuroscience, University of Coimbra, Coimbra, Portugal.

Organisation of congresses, workshops and sessions

1. Organised the session on Cognitive Phenotyping: Learning from MATRICS and CNTRICS and next steps. Cognition Summit, December 3-5, 2008. Scottsdale, AZ, USA.
2. Organised and chaired the Drug Development Session: Development of Novel metabotropic glutamate receptor agents for the treatment of schizophrenia and anxiety related disorders. 44th ACNP annual meeting. 2005. Waikoloa, Hawaii.
3. Organised and chaired the Drug Development Session at the Fourth International Meeting on Metabotropic Glutamate Receptors. September 15-20, 2002. Taormina, Italy.
4. Organised the Neurology days for stroke at Janssen Research Foundation. October 10-11, 2000. Beerse, Belgium.
5. Organised the symposium: 30th Anniversary of the Society for Experimental and Clinical Neuroscience. December 8, 2000. Beerse, Belgium.
6. Organised the symposium: Molecular biology of receptors, transfection and expression techniques, molecular modelling and protein crystal structure. Course for the Society for Experimental and Clinical Neuroscience. 1993. Beerse, Belgium.

Industrial Awards

- 2001 Standards of Leadership Award for the change leadership demonstrated during the 2001 reorganisation
- 2000 Excellence in Science Award for the Gas1 study proposal resulted in a 3-year postdoctoral research grant.

Executive education

- 2007 Early Drug Development process, J&J
Increasing impact, J&J
Innovation Excellence, J&J
- 2006 Senior Management Mentoring Program (WLI), J&J
- 2005 Pharmacokinetics/Pharmacodynamics and ADME/tox, J&J
- 2004 Mentoring (Women Leadership Initiative, Univ Diepenbeek
Control your mailbox, J&J
- 2003 Lobbying, the informal network, J&J
Time management and work/life balance, J&J
Pharmacokinetics course for pharmacologists, J&J
- 2002 Focus on influencing, J&J
Emotional intelligence, UK
BAP preclinical certificate, UK
- 2001 Standards of Leadership workshop, J&J
- 2000 Conflict management, JRF
- 1999 Emotional intelligence at work, Vlerick Management School
Turning stress into positive energy, JRF
- 1998 Vlerick Middle Management Consortium, Vlerick Leuven Gent Management School
Presentation techniques, JRF
- 1997 Managing personal growth, JRF
Meeting techniques, JRF
- 1994 Performance management, JRF
Fundamental skills for leading people, JRF

Academic training

- 1991 Neuroscience Program, Stanford University School of Medicine;
- Regulation of gene expression during development (H. Blau)
 - Developmental neurobiology (S.K. Mc Connel and C. Shatz)
 - Molecular Biology of the central nervous system (R. Ciaranello and D. Wong)
- 1988 Arolla workshop, University of Basel, Basel, Switzerland:
- Mechanisms of gene regulation and development (W. Gehring)
- 1987 EMBO Course, EMBL, Heidelberg, Germany:
- Sequencing approaches and strategies (W. Ansorge)
- 1985 EMBO Course, The John Innes Institute, Norwich England:
- Genetic manipulations of Streptomyces organisms (D. Hopwood)

Academic awards, grants and fellowships

- 1990-1992 Research Grant from the Scottish Rite Foundation (USA).
- 1991 Winifred Cullis Grant from the International Federation of University women
Rotary District Grant (USA)
- 1989-1990 Award for a long stay abroad from the National Foundation for Scientific
Research (Belgium)
- 1987-1989 Senior Research Assistant Fellowship from the National Foundation for
Scientific Research (Belgium)
- 1984-1987 Research Assistant Fellowship from the National Foundation for Scientific
Research (Belgium)

Society memberships

- Society for Neuroscience (current)
- European Collegium of Neuropsychopharmacology (current)
- Belgian/Dutch Society for Experimental and Clinical Neuroscience (Vice President 2003-2005)
- Belgian Society for Cellular Biology (past)
- European Tissue Culture Society (past)
- Belgian Society for Biochemistry and Molecular Biology (past)

Recreational interests and hobbies

- Travelling
- Sports: jogging, tennis, skiing, mountain hiking, fitness
- Learning to play the piano (M1)
- Opera, modern dance and theatre
- Reading
- Gardening

INVITED SPEAKER

1. From bench to bedside or how does a model cognitive program look like? **Anne Lesage**, Maarten Timmers & Luc Tritsmans. *Moleculia, and the quest for molecular luck: Cognition*. July 1, 2009. Beerse, Belgium.
2. Anxiolytic and cognitive properties of the mGlu1 receptor negative allosteric modulator JNJ-16259685. **Anne S.J. Lesage**, 44th ACNP Annual meeting, Dec 11-15, 2005. Waikoloa, Hawaii.
3. In vitro and in vivo activities of the mGlu1 receptor negative allosteric modulator JNJ16259685. **Lesage A.S.J.**, Lavreysen, H. Buist, A., Langlois, X., Prickaerts, J., Megens, A., Meert, T., Steckler, T. 4th International meeting on metabotropic glutamate receptors. Sept 18-23, 2005, Taormina, Sicily-Italy.
4. mGluR1: a target validation exercise. **Anne Lesage**. Science Day, October 4th 2002, Beerse, Belgium.
5. Novel, centrally active mGlu1 antagonists: in vitro and in vivo pharmacology. **Anne Lesage**, Bischoff, F., Van Beijsterveldt, L., Meert, T., Steckler, T., Ashton, D. 4th International meeting on metabotropic glutamate receptors. Sept. 15-20, 2002. Taormina, Sicily-Italy.
6. Ca²⁺ signalling and *in vitro* neuroprotection properties of glutamate receptor antagonists: implications for stroke therapy. **Anne Lesage**. 30th Anniversary symposium of the Society for Experimental and Clinical Neuroscience. December 8, 2000. Beerse, Belgium.
7. Pathophysiology of stroke: the ischemic cascade. **Anne Lesage**. Prosynap Workshop Barcelona. January 27-29, 1998, Barcelona, Spain.
8. Status of Lubeluzole studies at Janssen. **A.S.J. Lesage**. The Second Meeting of the Neuropsychopharmacology Researchers Group Organized by JRCJ. November 1, 1997, Tokyo, Japan.
9. Preclinical information on lubeluzole: an overview. **A.S.J. Lesage**. XVI World Congress of Neurology. September 19-24, 1997, Buenos Aires, Argentina.
10. Lubeluzole, a novel neuroprotectant, inhibits the glutamate-activated nitric oxide synthase pathway. **A.S.J. Lesage**. Janssen Cilag, April, 1996. Neuss, Germany.
11. Oxidative stress in neurodegenerative diseases. **Anne Lesage**. Thursday seminars, JRF. 1994, Beerse, Belgium.
12. New biochemical approaches for Alzheimer's disease. **A.S.J. Lesage**. Research Review Meeting, JRF. January 13, 1994, Beerse, Belgium.
13. Expression systems. **A.S.J. Lesage**. Thursday seminars, JRF. December 9, 1993, Beerse, Belgium.
14. Glucocorticoid mediated transcriptional and translational regulation of phenylethanolamine N-methyltransferase. **A.S. Lesage**, S. Levine, D.L. Wong. 21st Annual Meeting of the Society for Neuroscience, November 10-15, 1991. New Orleans, LA.

PATENTS

1. USE OF NEBIVOLVOL AS AN ANTI-ATHEROGENIC
EPO Patent No 0801564 EPO Filing Dt 21-Dec-1995
Priority: EPO PARENT Applic. No. 94203775.5 Filing Dt 28-Dec-1994
Publication no.: WO96/19987
de Chaffoy de Courcelles, Didier, **Lesage, Anne** and Leysen, Josée
2. USE OF FUSED BENZOTHAZOLES AS NEUROPROTECTANTS
EPO Applic. No. 96904810.7 EPO Filing Dt 14-Feb-1996
Priority: JAB 1004 Applic. No. 95200446.3 Filing Dt 23-Feb-1995
Publication no.: WO96/25931
De Brabander, Marc J., **Lesage, Anne** and Leysen, Josée
3. METABOTROPIC GLUTAMATE RECEPTOR ANTAGONISTS
EPO Patent No. 1332133 EPO Filing Dt 25-Sep-2001
Priority: EPO parent Applic. No. 00203419.7 EPO Filing Dt 2-Oct-2000
Publication no.: WO02/28837
Mabire, Dominique, Venet, Marc, Coupa, Sophie, Poncelet, Alain Philippe and **Lesage Anne**
4. RADIOLABELLED QUINOLINE AND QUINOLONE DERIVATIVES AND THEIR USE AS METABOTROPIC GLUTAMATE RECEPTOR LIGANDS
EPO Applic. No. 03745282.8 EPO Filing Dt 26-Mar-2003
Priority: EPO Parent Applic. No. 02076254.8 Filing Dt 29-Mar-2002
Publication no.: WO03/082350
Lesage Anne, Bischoff, Francois Paul, Janssen, Cornelus Gerardus Maria, Lavreysen, Hilde
5. 2-BENZYL-4-(4-[1-(TETRAHYDROFURAN-3-CARBONYL-PYRROLIDIN-3-YL)]-PIPERIDIN-1-YL)-(3,5-TRIFLUOROMETHYL-PHENYL)-METHANONE FOR THE TREATMENT OF SCHIZOPHRENIA
PCT Applic No PCT/EP2005/052887 Filing Dt 21-Jun-2005
Priority: EPO parent Applic No 04102885.3 Filing Dt 22-Jun-2004
Publication no.: WO2005/123081
Lesage Anne, Ashton, David, Janssens, Frans Eduard
6. 2-ANILINE-4-ARYL SUBSTITUTED THIAZOLE DERIVATIVES
EPO Applic. No. PCT/EP2006/066015 Filing Dt 05-Sep-2005
Priority: EPO Parent Applic. No. 05108395.4 Filing Dt 13-Sep-2005
Publication no.: WO2007/031440
Thuring, Johannes Wilhelmus John, Macdonald, Gregor James, Grantham, Christopher, James, Dinklo, Theodorus, **Lesage Anne**
7. TRISUBSTITUTED 1,2,4-TRIAZOLES
PCT Applic. No. PCT/EP2007/053829 Filing Dt 19-Apr-2007
Priority EPO parent Applic. No. 06112754.4 Filing Dt 19-Apr-2006
Publication no.: WO2007/118903
Thuring, Johannes Wilhelmus John., Macdonald, Gregor James, **Lesage Anne**, Zhuang, Wei, De Bruyn, Marcel Frans Leopold, Van Den Keybus, Frans Alphons Maria, Van Roosbroeck, Yves Emiel Maria, Dinklo, Theo, Duffy, James Edward Stewart
8. PREPARATION OF TRISUBSTITUTED 1,2,4 TRIAZOLES AND ANALOGS AS POSITIVE ALLOSTERIC MODULATORS OF A7 NICOTINIC ACETYLCHOLINE RECEPTORS.
Publication no.: WO2009/050186
Applic. No. WO 2008-EP63845 Filing Dt 15-Oct-2008
Priority: EPO parent Applic. No. 07118825.4 Filing Dt 18-Oct-2007
Thuring, Johannes, Wilhelmus, John, Dinklo, Theodorus, **Lesage Anne**, De Bruyn, Marcel Frans Leopold, Zhuang, Wei.

9. PREPARATION OF 1,3,5-TRISUBSTITUTED TRIAZOLE DERIVATIVE AS POSITIVE ALLOSTERIC MODULATORS OF A7 NICOTINIC ACETYLCHOLINE RECEPTORS.

Publication no.: WO2009/050185

PCT Applic. No. PCT/EP2008063844 Applic. No. 08805280.8-2101 Filing Dt 15-Oct-2008.

Priority: EPO parent Applic. No. 07118822.1 Filing Dt 18-Oct-2007

Thuring, Johannes, Wilhelmus John, F., Dinklo, Theodorus, **Lesage Anne**

Peer-reviewed scientific PUBLICATIONS

1. Activation of $\alpha 7$ nicotinic receptors improves phencyclidine-induced deficits in cognitive tasks in rats: implications for therapy of cognitive dysfunction in schizophrenia. McLean SL, Grayson B, Idris NF, **Lesage AS**, Pemberton DJ, Mackie C, Neill JC. 2010. Eur. Neuropsychopharmacology, Epub ahead of print.
2. Characterisation of JNJ-1930942, a novel positive allosteric modulator of the $\alpha 7$ nicotinic acetylcholine receptor. Dinklo T, Thuring J-W, Grantham C, Shaban H, Lavreysen H, Peeters L, Meulders G, Stevens K E, Zheng L, Mackie C, **Lesage AS** 2010. J. Pharm. Exp. Ther. 336: 560-574.
3. Metabotropic glutamate mGlu₁ receptor stimulation and blockade: therapeutic opportunities in psychiatric illness. **Lesage ASJ**, Steckler T. 2010. Eur. J. Pharmacology 639: 2-16.
4. Performance of F2 B6x129 hybrid mice in the Morris water maze, latent inhibition and prepulse inhibition paradigms: Comparison with C57Bl/6J and 129sv inbred mice. de Bruin N, Mahieu M, Patel T, Willems R, **Lesage A**, Megens A. 2006. Behav. Brain Res. 172: 122-34
5. Desensitization characteristics of the human $\alpha 7$ nAChR/5HT_{3A} chimera receptor. Dinklo, T, **Lesage AS**, Grantham CG. 2006. J. Mol. Neurosci. 30: 109-110.
6. A Positron Emission Tomography Radioligand for the *in vivo* Labeling of Metabotropic Glutamate 1 Receptor: 3-ethyl-2- [¹¹C]methyl-6-quinoliny)(*cis*-4-methoxycyclohexyl)methanone. Huang Y, Narendran R, Bischoff F, Guo N, Zhu Z, Bae S-A, **Lesage AS**, Laruelle M. 2005. J. Med. Chem. 48: 5096-5099.
7. Metabotropic glutamate receptor 1 blockade impairs acquisition and retention in a spatial Water maze task. Steckler T, Oliveira AFM, Van Dyck C, Van Craenendonck H, Mateus AMA, Langlois X, **Lesage ASJ**, Prickaerts J. 2005. Behavioural Brain Research 164: 52-60.
8. Antagonist-induced supersensitivity of mGlu₁ receptor signalling in cerebellar granule cells. Lavreysen H, Willemoens T, Leysen JE, **Lesage ASJ**. 2005. Eur J Neurosci, 21: 1610-1616.
9. Effect of mGlu₁ receptor blockade on anxiety-related behaviour in the rat lick suppression test. Steckler T, Lavreysen H, Oliveira AM, Aerts N, Van Craenendonck H, Prickaerts J, Megens A, **Lesage ASJ**. 2005. Psychopharmacology 179: 198-206.
10. Synthesis, structure-activity relationship and receptor pharmacology of a new series of quinoline derivatives acting as selective noncompetitive mGlu₁ antagonists. Mabire D, Coupa S, Adelinet C, Poncelet A, Simonnet Y, Venet M, Wouters R, **Lesage A**, Van Beijsterveldt L, Bischoff F. 2005. J. Med. Chem. 48: 2134 – 2153.
11. MK-801 alters RGS2 levels and adenylyl cyclase sensitivity in the rat striatum. Taymans J-M, Cruz C, **Lesage ASJ**, Leysen JE, Langlois X. 2005. NeuroReport 16: 1-4.
12. JNJ16259685, a highly potent, selective and systemically active mGlu₁ receptor antagonist. Lavreysen H, Wouters R, Bischoff F, Nóbrega Pereira S, Langlois X, Blokland S, Somers M, Dillen L, **Lesage ASJ**. 2004. Neuropharmacology 47: 961-972.
13. Role of group I metabotropic glutamate receptors mGlu₁ and mGlu₅ in nociceptive signaling. Review. **Lesage ASJ**. 2004. Current Neuropharmacology, 2: 363-393.

14. Metabotropic glutamate 1 receptor distribution and occupancy in the rat brain: a quantitative autoradiographic study using [³H]R214127. Lavreysen H, Nóbrega Pereira S, Leysen JE, Langlois X, **Lesage AS**. 2004. *Neuropharmacology* 46: 609-619.
15. Internalisation of human 5-HT_{4a} and 5-HT_{4b} receptors is splice variant dependent. Pindon A, Van Hecke G, Josson K, Van Gompel P, **Lesage AS**, Leysen JE, Jurzak M. 2004. *Bioscience Reports* 24:215-223.
16. [³H]R214127: A novel high-affinity radioligand for the mGlu1 receptor reveals a common binding site shared by multiple allosteric antagonists. Lavreysen H, Janssen C, Bischoff F, Langlois X, Leysen JE, **Lesage ASJ**. 2003. *Mol. Pharmacol.* 63: 1082-1093.
17. Synthesis and biological activities on conformationally restricted cyclopentenyl-glutamate analogues. Ung AT, Schafer K, Lindsay KB, Pyne SG, Amornraksa K, Wouters R, Van der Linden I, Biesmans I, **Lesage ASJ**, Skelton BW, and White AH. 2002. *J. Org. Chem* 67: 227-233.
18. Supersensitivity of human metabotropic glutamate 1a receptor signaling in L929sA cells. Lavreysen H, Le Poul E, Van Gompel P, Dillen Y, Leysen JE, **Lesage ASJ**. 2002. *Mol. Pharm.* 61: 1244-1254.
19. Neurotrophic and antileukemic daphnane diterpenoids from *Synaptolepis kirkii*. He W, Cik M, Van Puyvelde L, Van Dun J, Appendino G, **Lesage A**, Van der Linden I, Leysen JE, Wouters W, Mathenge SG, Mudida FP, De Kimpe N. 2002. *Bioorganic & Medicinal Chemistry*. 10:3245-3255.
20. Differences in signal transduction of two 5-HT₄ receptor splice variants: compound specificity and dual coupling with G α s- and G α i/o- proteins. Pindon A, Van Hecke G, Van Gompel P, **Lesage ASJ**, Leysen JE, Jurzak M. 2002. *Mol. Pharm.* 61: 85-96.
21. Glutamate receptor subunit expression in primary neuronal and secondary glial cultures. Janssens N, **Lesage ASJ**. 2001. *J. Neurochem.* 77: 1457-1474.
22. Kirkinine, a new daphnane orthoester with potent neurotrophic activity from *Synaptolepis kirkii*. He W, Cik M, **Lesage A**, Van der Linden I, De Kimpe N, Appendino G, Bracke J, Mathenge SG, Mudida FP, Leysen JE, Van Puyvelde L. 2000. *J. Natural Products*, 63: 1185-1187.
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