

Alain LESIMPLE Ph.D.

KAUST

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Over 17 years of experience in applied research, planning and analytical development. Subject matter expert in mass spectrometry, with hands on experience of analytical instrumentation such as LTQ Orbitrap, FTICR MS, ESI QToF, Triple Quads, Maldi QToF, QTrap, FT IR and FT NMR. Enthusiastic, innovative, good observation skills and attention to details. Ability to work in an interdisciplinary team.

Expertise includes:

- *Designing and implementing experiments based on scientific literature analysis and discussion with client / researchers*
- *Providing oversights and training for junior personnel*
- *Interactions with customers and other laboratories*
- *Synthesis of polymers adapted to the production of concrete*
- *Development of specific oilfield chemical formulations to improve oil production*
- *Proven experience of setting-up laboratories, hiring and managing qualified and skilled personnel*
- *Proficient with Microsoft Office applications*
- *Proficient with mass spectrometry software as Xcalibur, MassLynx, Analyst, Mass Hunter and Compass*

Work Experience

April 2013-Present
KAUST
Thuwal, Saudi Arabia

Research Scientist, Chromatography/Mass Spectrometry

- Laboratory setup,
- Method development and data interpretation,
- Student Training.

August 2011-March
2013
KAUST
Thuwal, Saudi Arabia

Research Scientist, Chromatography/Mass Spectrometry

- Service oriented analysis,
- Established collaborations with PIs,
- Training on and operation of the Bruker MicroTof.

October 2010- July
2011
**Montreal Heart
Institute**
Montreal, Canada

Research Associate, Mass Spectrometry Lipidomics

- Development of a Mass Spectrometry Metabolomic Platform,
- Mass Spectrometry Workflow Definition,
- Operation of the Agilent 6530 UPLC-QToF.

February 2010
-October 2010
McGill University

Research Associate, Mass Spectrometry

- Training course and Certificate from Thermo Fischer on the LTQ XL-Orbitrap
- Operation of the LTQ XL-Orbitrap.
- Setup of an Eksigent nano HPLC with the Mass Spectrometer for Hydrogen Deuterium Exchange study on proteins.
- Definition of signal quality from a tryptic protein digest.
- Use of Sequest for data analysis

August 2002
-February 2010
McGill University

Montreal, Canada

Research Assistant, Mass Spectrometry

- Operation of various mass spectrometer instruments: FTICR MS, VG Quattro, ESI QToF, Maldi QToF, SCIEX QTrap.
- Method development for identifying and quantifying chemical components with detailed MS data interpretation.
- Design of MS strategies and LC separations for the LC-MS of antibiotics.
- Design of MS strategies for quantifying Phosphatidyl choline and Sphingomyelin.
- Elucidation of fragmentation pathways using MSⁿ analysis.
- Active participation in the installation of instruments: VGQuattro, QToF, Maldi QToF and FTICR MS.
- Maintenance and troubleshooting of mass spectrometry instruments.
- Participation in Data Compilation and scientific paper writing.
- Staff training on new instruments.
- Sensibilization to computational chemistry.

August 2001-2002
Handy Chemicals,
Candiac, Canada

R&D Organic Chemist in Polymer Synthesis used in concrete production

- Setting up new research laboratory including procurement of equipments, chemicals and laboratory hardware.
- Manage a staff of 4
- Synthesis and characterization of polymeric dispersants used in concrete production.
- Synthesis and scale-up of a new polymer involved in the production of concrete.
- Reverse engineering of commercial products.

May-August 2001
KABS,
St Hubert, Canada

Analytical Chemist

- Quality control of pharmaceutical products using different analytical techniques in a GMP environment.

2000-2001
CNRS Pierre Fabre
Cosmetics
Toulouse, France

Research Assistant,

- Synthesis, purification and characterization of two dermato-cosmetic molecules
- Isolation and characterization of secondary products
- Parametric optimization of synthesis.

1995-2000
ANTICOR-CHIMIE
Peyruis, France

Organic Chemist,

- Set-up a new development laboratory
- Chemical formulation development and on-field improvement of asphaltene dispersants.
- Strong interaction with customers for the definition of their needs.
- Laboratory management and staff supervision.
- New formulation invention leading to European patents.
- Analytical method development.
- Investigation of new active substances and improvement of existing formulas.
- Surfactant formulation elaboration.

1989-1995
ENSCT
Toulouse, France

Ph.D., Research Fellow, École Nationale Supérieure de Chimie
“Diamines Mono et Difuraniques: Synthèse et Analyse”

- Invention of a new process of synthesis of amines di- and tetra-furaniques leading to two French Patents.

- Synthesis of mono- and difuranic-diamine molecules and their characterization by NMR, IR and MS.
- Synthesis optimization prior to industrialization.
- Full involvement in the team.
- Bibliographic research.

1993
ENSCT
Toulouse, France

Engineer, Société Nationale des Poudres et des Explosifs

- Dangerous gas handling.
- Dimethyl-carbonate industrial purification
- Laboratory study and on production site application.

Education

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| 1995 | ✎ Ph.D. Institut National Polytechnique de Toulouse, at Ecole Nationale Supérieure de Chimie de Toulouse, France (ENSCT) |
| 1989 | ✎ DEA (Master) at ENSCT |
| 1989 | ✎ Engineer in Chemistry , Option: <i>Organic Chemistry</i> at ENSCT, Institut National Polytechnique de Toulouse. |

CERTIFICATE

2010 LTQ Orbitrap Biotech Operation Training by ThermoFisher

2012 MicroTOF HPLC-MS Training by Bruker

PATENTS

1. Apparatus for terahertz wave generation from water vapor

Mamer, Orval; Lesimple, Alain; Johnson, Keith H.; Chen, Yunqing; Yamaguchi, Masashi; Zhang, X.-C.; Price-Gallagher, Matthew. U.S. Pat. Appl. Publ. (2009), US 20090074016 A1 20090319

2. Asphaltene inhibitors. Lesimple, Alain; Herold, Claus-Peter; Groffe, Didier; Breuer, Wolfgang. (Cognis Deutschland G.m.b.H., Dep. Intellectual Properties, Germany). Eur. Pat. Appl. (2001), 10 pp. EP 1091085 A1 20010411 Application: EP 99-120214 19991009.

3. Preparation of bis[5-aminomethyl-2-furyl](ar)alkanes, analogs, and salts, useful as diisocyanate monomer precursors. Lesimple, Alain; Le Bigot, Yves; Delmas, Michel; Gaset, Antoine; Roux, Gabriel. (Furchim, Fr.). PCT Int. Appl. (1993), 32 pp. *WO 9302071 A1 19930204*

4. Preparation of bis[bis(5-aminomethyl-2-furyl)methyl] benzenes, analogs, and ammonium salts as polymer crosslinking agents. Lesimple, Alain; Le Bigot, Yves; Delmas, Michel; Gaset, Antoine; Roux, Gabriel. PCT Int. Appl. (1993), 28 pp. *WO 9302072 A1 19930204*. Application: WO 92-FR722 19920722. Priority: FR 91-9478 19910724

PUBLISHED PAPERS

- 1. Measurement of urinary trimethylamine and trimethylamine oxide by direct infusion electrospray quadrupole time-of-flight mass spectrometry.** Mamer, Orval A.; Choiniere, Luc; Lesimple, Alain. *Analytical Biochemistry* (2010), 406(1), 80-82.
- 2. Water vapor: An extraordinary terahertz wave source under optical excitation.** Johnson, Keith; Price Gallagher, Matthew; Mamer, Orval; Lesimple, Alain; Fletcher, Clark; Chen, Yunqing; Lu, Xiaofei; Yamaguchi, Masashi; Zhang, X.-C. *arXiv.org, e-Print Archive, Physics* (2009), 1-9, *arXiv:0902.2024v1 [physics.optics]*.
- 3. Water vapor: An extraordinary terahertz wave source under optical excitation.** Johnson, Keith; Price Gallagher, Matthew; Mamer, Orval; Lesimple, Alain; Fletcher, Clark; Chen, Yunqing; Lu, Xiaofei; Yamaguchi, Masashi; Zhang, X.-C. *Physics Letters A* (2008), 372(38), 6037-6040.
- 4. Coherent heterodyne timedomain spectrometry covering the entire "terahertz gap".** Karpowicz, Nicholas; Dai, Jianming; Lu, Xiaofei; Chen, Yunqing; Yamaguchi, Masashi; Zhao, Hongwei; Zhang, X.C.; Zhang, Liangliang; Zhang, Cunlin; Price-Gallagher, Matthew; et al *Applied Physics Letters* (2008), 92(1), 011131/1-011131/3.
- 5. Collision-induced dissociation of sulfur-containing imidazolium ionic liquids.** Lesimple, Alain; He, Xun; Chan, Tak-Hang; Mamer, Orval. *Journal of Mass Spectrometry* (2008), 43(1), 35-41.
- 6. Human Neutrophils Convert the Sebum-derived Polyunsaturated Fatty Acid Sebaleic Acid to a Potent Granulocyte Chemoattractant.** C. Cossette, P. Patel, J. R. Anumolu, S. Sivendran, Gue Jae Lee, S. Gravel, F. D. Graham, A. Lesimple, O. A. Mamer, J. Rokach and W. S. Powell. *The Journal of Biological Chemistry* (2008), 283(17), 11234-11243.
- 7. Structural Requirements for Activation of the 5-Oxo-6E,8Z, 11Z,14Z-eicosatetraenoic Acid (5-Oxo-ETE) Receptor: Identification of a Mead Acid Metabolite with Potent Agonist Activity.** P. Patel, C. Cossette, J. R. Anumolu, S. Gravel, A. Lesimple, O. A. Mamer, J. Rokach and W. S. Powell. *The Journal of Pharmacology and Experimental Therapeutics* (2008), 325(2), 698-707.
- 8. Hereditary and acquired diseases of acyl-coenzyme A metabolism.** G. A. Mitchell, N. Gauthier, A. Lesimple, Shu Pei Wang, O. Mamer and I. Qureshi. *Molecular Genetics and Metabolism* (2008), 94(1), 4-15.
- 9. PqsA is required for the biosynthesis of 2,4-dihydroxyquinoline (DHQ), a newly identified metabolite produced by Pseudomonas aeruginosa and Burkholderia thailandensis.** Lepine, Francois; Dekimpe, Valerie; Lesic, Biliana; Milot, Sylvain; Lesimple, Alain; Mamer, Orval A.; Rahme, Laurence G.; Deziel, Eric. *Biological Chemistry* (2007), 388(8), 839-845.
- 10. Airway epithelial cells synthesize the lipid mediator 5-oxo-ETE in response to oxidative stress.** K.-R. Erlemann, C. Cossette, S. Gravel, A. Lesimple, Gue-Jae Lee, G. Saha, J. Rokach, W. S. Powell. *Free Radical Biology & Medicine* 42 (2007) 654-664
- 11. Increased sphingomyelin content impairs HDL biogenesis and maturation in human Niemann-Pick disease type B.** Ching Yin Lee, A. Lesimple, M. Denis, J. Vincent, Å. Larsen, O. Mamer, L. Krimbou, J. Genest and M.I. Marcil. *Journal of Lipid Research* (2006), 47 (3): 622-632.
- 12. Electrospray Mass Spectral Fragmentation Study of N,N'-Disubstituted Imidazolium Ionic Liquids.** A. Lesimple, W. Miao, Tak Hang Chan and O. Mamer. *Journal of the American Society for Mass Spectrometry* (2006), 17 (1): 85-95
- 13. Multiple Losses of Neutral C₁₄H₁₄ in the Tandem Mass Spectrometry of Several Perbenzyl Ether Intermediates in the Synthesis of Green Tea Constituents.** A. Lesimple, M. Di Falco, Y. Richard, S.

Lesimple, Z. Wang, Tak Hang Chan and O. A. Mamer. *Rapid Communication in Mass Spectrometry* (2005), 19: 3253-3258

14. **Stimulation of hepatic acute-phase response by stress, sucrose polyester and zocor in animal model.** Fouad, F. M.; Mamer, O. A.; Sauriol, F.; **Lesimple, A.**; Shahidi, F.; Khayyal, M.; Hasseeb, M.; Ruhenstroth-Bauer, G. *Special Publication - Royal Society of Chemistry* (2005), 300(*Food Flavor and Chemistry*), 341-349.
15. **Hepatic acute-phase response to 3-alkyl-2-phenyl-2-hydroxymorpholinium cations.** Fouad, F. M.; Mamer, O. A.; Sauriol, F.; **Lesimple, A.**; Shahidi, F.; Ruhenstroth-Bauer, G. *Special Publication - Royal Society of Chemistry* (2005), 300(*Food Flavor and Chemistry*), 335-340.
16. **Protonated 1-methylimidazole decomposition by electrospray tandem mass spectrometry.** Mamer, Orval A.; **Lesimple, Alain.** *Rapid Communications in Mass Spectrometry* (2005), 19(12), 1771-1774.
17. **ESI-MS quantitation of increased sphingomyelin in Niemann-Pick disease type B HDL.** Lee, Ching Yin; **Lesimple, Alain**; Larsen, Asmund; Mamer, Orval; Genest, Jacques. *Journal of Lipid Research* (2005), 46(6), 1213-1228.
18. **Taxanes with C-5-amino-side chains from the needles of *Taxus canadensis*.** Shi, Qing-wen; Ji, Xiuhong; **Lesimple, Alain**; Sauriol, Françoise; Zamir, Lolita O. *Phytochemistry (Elsevier)* (2004), 65(23), 3097-3106.
19. **Mass spectral behaviour of some homoleptic and mixed aryldichalcogenide bis(diphenylphosphino)ferrocenenickel(II) palladium(II) and platinum(II) and bis(diisopropylphosphino)ferrocenepalladium(II) Complexes.** Emmanuel Y. Osei-Twum, James Darkwa, Letladi. L. Maisela, **Alain Lesimple**, Orval Mamer, and Luis A Litorja, Jr. *Journal of the American Society for Mass Spectrometry* (2005), 16(1), 94-99.
20. **In vitro biosynthesis of plasma proteins under ischemic conditions of closed-circuit perfusion of healthy and intoxicated rabbit liver**, F. Mounir Fouad, Orval Mamer, M. Khayyal, François Sauriol, **Lesimple, A.** and G. Ruhenstroth-Bauer *Medical Hypotheses*, (2004), 63(6), 1024-1034.
21. **Cardiac heart disease in the era of sucrose polyester, *Helicobacter pylori* and *Chlamydia pneumoniae*.** Fouad, F. M.; Mamer, Orval; Sauriol, François; Khayyal, M.; **Lesimple, A.**; Ruhenstroth-Bauer, G *Medical Hypotheses* (2004), 62(2), 257-267.
22. **First three examples of taxane-derived di-propellanes in *Taxus canadensis* needles.** Shi, Qing Wen; Sauriol, Françoise; **Lesimple, Alain**; Zamir, Lolita O. *Chemical Communications* (Cambridge, United Kingdom) (2004), (5), 544-545.
23. **Letter to the editor.** Mamer, O. A.; **Lesimple, A.** *Journal of the American Society for Mass Spectrometry* (2004), 15(4), 626
24. **Electron ionization mass spectrometry of difurfuryl diamines.** **Lesimple, Alain**; Le Bigot, Yves; Delmas, Michel; Banoub, Joseph. *Spectroscopy* (Amsterdam) (2000), 14(3), 109-114.
25. **Characterization by electrospray tandem mass spectrometry of a novel series of synthetic difuranic diamine dihydrochlorides containing the bis(5-aminomethyl-2-furyl) unit.** Gentil, Emmanuel; **Lesimple, Alain**; Le Bigot, Yves; Delmas, Michel; Banoub. *Rapid Communications in Mass Spectrometry* (1994), 8(11) : 869-75
26. **New method for the synthesis of difuranic diamines and tetrafuranic tetraamines.** Skouta, M.;

Lesimple, A.; Le Bigot, Y.; Delmas, M. *Synthetic Communications* (1994), 24(18), 2571-6

REFERENCES ARE AVAILABLE ON REQUEST.