



## Curriculum vitae – Matthew J. Leonard, Chemist

Born: 15-Jan-1983

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Address: 7 Lime Court, Bellfield, Victoria, 3081

Education: Eltham High school, Victoria. Completed in 2000

Bachelor of Science (Chemistry).

Completed 2007, La Trobe University

Honours in Polymer Chemistry (First Class)

*Classification and characterization of cellulosic materials by Chemometrics.*

Advisor: Professor Robert Shanks

Completed 2010, RMIT University

Doctor of Philosophy (Organic Synthesis) - Current

*Syntheses of hydantoin homologues.*

Advisor: Professor Helmut Hügel

Completion 2013, RMIT University

Conferences: Gordon Research conference on heterocyclic compounds,  
Salve Regina University, Newport, Rhode Island, 24-29 June 2012  
Phosgene free approach towards synthesis of the antiandrogen RU58841 & homologues of interest

Travel awards: To attend GRC Heterocycles, 2012:

- RMIT School of graduate research, international conference fund: AU\$1800
- RMIT School of Applied Sciences, conference travel top up award: AU\$1000
- ATA Scientific Travel award, June 2012: AU\$400
- Gordon Research Conferences junior & vastly travelled PhD student: US\$700

Publications: Publications currently being written:

- *Alternative total synthesis of the anti-baldness compound RU58841*

Full journal article to be submitted to Organic and Biomolecular Chemistry.

**Abstract:** RU58841 is active against baldness and is available to purchase. Classic synthesis exploits phosgene reagent, 3 discrete inert atmosphere steps and 3 steps that require flash chromatography. Our synthesis uses no phosgene, only 1 inert atmosphere step and totally avoids flash chromatography. This is achieved by stepwise construction of the hydantoin moiety around the starting aniline's amine and strategic ring closure to give 2-nitropropane leaving group. Yields are generous on small scale and appear promising for process chemistry.

Authors: Matthew Leonard, Ben Alford, Anthony Lingham, Helmut Hügel, Neale Jackson

Two more planned for current research:

- *Bromo-nitro substitution on a tertiary carbon alpha to an amide carbonyl - characterization of a previously unexplored reaction*

Full journal article to be submitted to Australian Journal of Chemistry.

Authors: Matthew Leonard, Ben Alford, Anthony Lingham, Helmut Hügel, Neale Jackson

- *Preparation of RU58841 homologues. Insight into biological activity by deduction of the pharmacophore and its mechanism of action*

Full journal article to be submitted to Tetrahedron.

Authors: Matthew Leonard, Ben Alford, Anthony Lingham, Helmut Hügel, Neale Jackson

Books:

- *Solvent of the week*

e-book

**Abstract:** Solvent of the week is a free series of 52 emails. Each has BP, MP, density, chemdraw image, 1 paragraph of prose and a tagline. Solvent of the week is an educational tool enjoyed around the world. Many solvents of the week have been written by request.

“If in doubt, try the solvent of the week!”

Author: Matthew Leonard

**Recent Employment: 28-Feb-2011 to present**

RMIT University, Melbourne

PhD student

- Taught undergraduate chemistry
- Kept the laboratory clean and safe while chemical research is underway
- Solvent of the week: A series of educational emails, each with MP, BP, density, chemdraw image, 1 paragraph of prose and a tagline. These are available by sending a request to Matthew.
- Procured a crystal fridge for the organic lab
- Visit to Advion in Ithaca, USA to view compact mass spectrometer, which was subsequently purchased.

**4-May-2009 to 5-Mar-2010**

Applied polymers, Cheltenham, Victoria - Polyurethane Chemist

- Spent time in lab to make changes to product specifications
- Calibrated instruments
- Raw material tests
- Changed product formulations; raw materials out of production (e.g. ozone depleting blowing agent replacement), polyol blend adjustment for desired physical properties.
- Trained staff in laboratory methods
- Developed new products to meet industry needs

**28-Feb-2009 to 29-Mar-2009**

La Trobe University teaching laboratory - Sessional demonstrator

- Operation of instruments for practical classes; flame AAS, HPLC, GC, UV-vis
- Explained the principles behind analysis and showed students around the laboratories
- Worked with academics to maintain and calibrate instruments

**2-Feb to 19-Feb-2009**

Domaine Chandon, Coldstream, Victoria

Wine laboratory worker, 2009 vintage period

- Collected samples of grape juice, ferment and barreled product
- Mixed new recipes by adding liqueurs/SO<sub>2</sub>, removal of yeast.
- Tested samples on behalf of winemakers for properties: SO<sub>2</sub> levels, pH & total Brønstead acids, sugar content of juices, alcohol levels, acetic acid levels, pressure testing of sparkling wine bottles and calculation of residual sugars in sparkling/still wines.

**2-Jun-2008 to 9-Sep-2008**

Amdel mineral laboratories, Mount Isa, Queensland

- Weighed and prepared samples for analysis
- Supervised casual laboratory staff
- Operated and maintained flame AAS and XRFs
- Completed quality control checks on data in a timely manner for clients
- Prepared laboratory reagents
- Inventory management of chemicals, gases and consumables for laboratory

Other Skills:

- Computer, telephone & internet
- Proficient with data analysis
- Quality document production
- Strong customer service skills and a professional telephone manner
- Victorian drivers licence
- Level 2 First Aid
- Victorian Working with Children Check
- A drive to help people receive satisfactory answers to questions
- Ability to solve a problem using the scientific method
- Vice-Chancellor's List for Academic Excellence in 2010
- A firm knowledge of science and the natural world, particularly the chemical sciences
- Experienced in a laboratory environment; mixing chemicals, being aware of health & safety, analyzing materials and reporting results
- Punctual to appointments, reliable, friendly and honest - A professional

Interests:

- Foreign languages and cultures
- The written word
- Story telling
- History
- Card games
- Cooking
- Fragrance Chemistry
- Photography
- Cinema
- Having a laugh with friends

Referees:

**Professor Helmut Hügel,**  
Lecturer in Synthetic Chemistry,  
RMIT University. Leader of Organic Synthesis Research Group  
03 9925 2626

**Dr Ian Potter,**  
Lecturer in Chemistry, Head of Chemistry Department,  
La Trobe University. Analytical and Environmental Science  
03 9479 3224

**Martin Cheale, B.A.,**  
Student Services Manager, La Trobe University  
03 9479 1594

**Roslyn Lampard, B.Sc.,**  
Retired friend  
03 9878 9585