

## Slade Matthews

Senior Lecturer in Toxicology  
Head, Pharmacoinformatics Laboratory  
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### EDUCATION

Graduate Certificate in Higher Education (USYD)	2011
PhD (Medicine) (USYD)	2007
Diploma in Education (UNSW)	2005
Bachelor of Medical Science, Honours (USYD)	1995

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### OTHER TRAINING

• Pharmaceutical Bioinformatics, Uppsala Universitet, Sweden	2011
• OHS Consultation, The Jackson Group Pty Ltd	2005
• Microsoft Certified Professional, Comtech Education Services	2002
• Unix System Administration, Basser School, Sydney University	2000

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### AWARDS

ASCEPT ASM: Toxicology Special Interest Group Award	2018
ASCEPT ASM: Toxicology Special Interest Group Award	2016
ASCEPT ASM: Toxicology Special Interest Group Award	2015
Sydney Medical School Award for Outstanding Teaching	2012
Coop Bookshop Excellence in Teaching Award	2009

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### PUBLICATIONS AND PAPERS

#### Peer Reviewed Journal Publications

1. Hinton, T., Jelinek, H., Viengkhou, V., Johnston, G., **Matthews, S.** (2019). Effect of GABA-Fortified Oolong Tea on Reducing Stress in a University Student Cohort. *Frontiers in Nutrition*, 6, 1-8.
2. Guan, D., Fan, K., Spence, I., **Matthews, S.** (2018). Combining machine learning models of in vitro and in vivo bioassays improves rat carcinogenicity prediction. *Regulatory Toxicology and Pharmacology*, 94, 8-15.
3. Lai, K., **Matthews, S.**, Wilmott, J., Killingsworth, M., Yong, J., Caixeiro, N., Wykes, J., Samakeh, A., Forstner, D., Lee, M., Hong, A., Lee, C., et al (2018). Differences in LC3B expression and prognostic implications in oropharyngeal and oral cavity squamous cell carcinoma patients. *BMC Cancer*, 18(1), 1-12
4. Guan, D., Fan, K., Spence, I., **Matthews, S.** (2018). QSAR ligand dataset for modelling mutagenicity, genotoxicity, and rodent carcinogenicity. *Data in Brief*, 17, 876-884
5. Lai, K., Killingsworth, M., Yong, J., **Matthews, S.**, Ebrahimi, A., McGuinness, J., ... Lee, C. S. (2017). Specific localization of LC3B in autophagosome: A correlative labelling study with nanoparticle in oral squamous cell carcinoma. *Exp Mol Pathol*, 102(3), 422-427.
6. Chan, B., Reeve, E., **Matthews, S.**, Carroll, P., Long, J., Held, F., Latt, M., Naganathan, V., Caplan, G., Hilmer, S. (2017). Medicine information exchange networks among healthcare professionals and prescribing in geriatric medicine wards. *British Journal of Clinical Pharmacology*, 83(6), 1185-1196
7. Lai K, Killingsworth M, **Matthews S**, Caixeiro N, Evangelista C, Wu X, Wykes J, Samakeh A, Forstner D, Niles N, Hong A, Lee CS. (2016) Differences in survival outcome between oropharyngeal and oral cavity squamous cell carcinoma in relation to HPV status. *J Oral Pathol Med*. 2016 [Epub ahead of print]
8. Dixit R, **Matthews S**, Khandaker G, Walker K, Festa M, Booy R. (2016) Pharmacokinetics of oseltamivir in infants under the age of 1 year. *Clin Transl Med*. 2016 Dec;5(1):37.
9. Lee, Y., Reidler, P., Jelinek, H., Lee, Y., Zhou, Y., Hambly, B., McCabe, J., **Matthews, S.**, Ke, H., Assareh, H., et al (2016). Electrocardiogram derived QRS duration associations with elevated central aortic systolic pressure (CASP) in a rural Australian population. *Clinical Hypertension*, 22(6), 1-6

10. Ebach, M., Michael, M., Shaw, W., Goff, J., Murphy, D., and **Matthews, S.** (2016) Big data and the historical sciences: A critique. *Geoforum* 1-4. doi:10.1016/j.geoforum.2016.02.020
11. Marzbanrad F, Khandoker AH, Hambly BD, Ng E, Tamayo M, Lu Y, **Matthews S**, Karmakar C, Palaniswami M, Jelinek HF, McLachlan C. (2016) Methodological Comparisons of Heart Rate Variability Analysis in Patients With Type 2 Diabetes and Angiotensin Converting Enzyme Polymorphism. *IEEE Journal of Biomedical Health Informatics*. 2016 Jan;20(1):55-63.
12. Gnjdjic, D., A. Bennett, D. G. L. Couteur, F. M. Blyth, R. G. Cumming, L. Waite, D. Handelsman, V. Naganathan, **S. Matthews** and S. N. Hilmer (2015). "Ischemic heart disease, prescription of optimal medical therapy and geriatric syndromes in community-dwelling older men: A population-based study." *International Journal of Cardiology* 192: 49-55.
13. Qi, K., E. Reeve, S. N. Hilmer, S. A. Pearson, **S. Matthews** and D. Gnjdjic (2015). "Older peoples' attitudes regarding polypharmacy, statin use and willingness to have statins deprescribed in Australia." *Int J Clin Pharm.* (in press).
14. Claire Johnston, Sarah N Hilmer, Andrew J McLachlan, **Slade T Matthews**, Peter R Carroll and Carl M Kirkpatrick. (2014) The impact of frailty on pharmacokinetics in older people: Using gentamicin population pharmacokinetic modeling to investigate changes in renal drug clearance by glomerular filtration. *European Journal of Clinical Pharmacology*.
15. Bennett A, Gnjdjic D, Gillett M, Carroll P, **Matthews S**, Johnell K, Fastbom, J., and Hilmer, S. (2014). Prevalence and Impact of Fall-Risk-Increasing Drugs, Polypharmacy, and Drug-Drug Interactions in Robust Versus Frail Hospitalised Falls Patients: A Prospective Cohort Study. In: *Drugs & aging*.
16. **Matthews, Slade** (2013) One-Tailed Significance Tests And The Accounting For Alpha. *Clin Exp Pharmacol Physiol*. [doi: 10.1111/1440-1681.12128.]
17. Ethan Ng, Brett Hambly, Herbert F. Jelinek, Joo-Mee Hwang, Bing Yu, **Slade Matthews** and Craig S. McLachlan. (2012) Angiotensin-converting enzyme gene (ACE) DD genotype is associated with increased systolic blood pressure in an Australian Caucasian Rural Type 2 Diabetic Cohort. *Hypertension Research*. (2012 Dec 13. doi: 10.1038/hr.2012.195).
18. **Slade Matthews**, Sara Vafaeiafraz, Herbert Jelinek, Craig S. McLachlan. (2012) Heart rate stability and decreased parasympathetic heart rate variability in healthy young adults during perceived stress. *International Journal of Cardiology* (156): 337–338
19. Vanessa A McMahon, **Slade Matthews**, Hugh Capper, Jessica B Chudleigh, Craig S McLachlan (2012). Understanding Decision and Enabling Factors Influencing Clinical Trial Participation in Australia: A View Point. *Asian Pacific Journal of Cancer Prevention* 12(11):3153-6.
20. Andrew H. Kemp, Daniel S. Quintana, Kim L. Felmingham, **Slade Matthews**, Herbert F. Jelinek, (2012) Depression, Comorbid Anxiety Disorders, and Heart Rate Variability in Physically Healthy, Unmedicated Patients: Implications for Cardiovascular Risk. *PLoS ONE* 7(2): e30777.
21. **Slade Matthews**, Petter Succar, Brent McParland, Herbert Jelinek, Michael Buckland, Craig S McLachlan. (2012) Classification of Oligodendrogliomas: molecular and immuno-histochemical targets in the context of diagnostic "classical" histological assessment. *Asia Pacific Journal of Clinical Oncology* (8) 213-126.
22. Alice Kane, Peter R Carroll, **Slade T Matthews**, Sarah N Hilmer (2012) Characteristics of Younger and Older Patients with Suspected Paracetamol Toxicity. *Australasian Journal on Ageing* doi: 10.1111/j.1741-6612.2012.00598.x
23. Claire F Johnston, Peter R Carroll, **Slade T Matthews**, Sarah J Mitchell, Sarah N Hilmer (2011) 'You Look Like a 240 mg': Gentamicin Dosing in a Sydney Teaching Hospital. *Journal of Pharmacy Practice and Research*. 41 (4) 267-9.
24. Sarah N Hilmer, Kim Tran, Patrick Rubie, Jason Wright, Danijela Gnjdjic, Sarah J Mitchell, **Slade Matthews**, Peter R Carroll (2011) Gentamicin Pharmacokinetics in Old Age and Frailty. *British Journal of Clinical Pharmacology*. 71:224-31.
25. Wang CM, Almsherqi ZA, McLachlan CS, **Matthews ST**, Ramachandran M, Tay KH, Deng Y (2011). Acute starvation in C57BL/6J mice increases UCP2 and UCP3 protein expression levels and decreases mitochondrial bio-energetic function in the myocardium. *Stress- The International Journal on the Biology of Stress* 14(1):66-72.
26. S. J. Mitchell, S. N. Hilmer, B. P. Murnion, **S. Matthews**. (2010) Hepatotoxicity of therapeutic short-course paracetamol in hospital inpatients: impact of ageing and frailty. *Journal of Clinical Pharmacy and Therapeutics*. 0:doi:10.1111/j.1365-2710.2010.01193.).
27. McLachlan CS, Taylor CB, Li Y, Willenberg L, **Matthews S**, Glass P, Myburgh J. (2010) Severe falciparum malaria patients transferred "late" to a high level ICU in India represents a difficult research capture point to

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- comment on predictors of mortality and related organ dysfunction. *Singapore Medical Journal* 51(9): 752-3.
28. Craig S. McLachlan, PhD, MPH, Ryan Ocsan, MSc, Ian Spence, PhD, Brett Hambly, MD, PhD, **Slade Matthews**, PhD, Lexin Wang, MD, PhD, and Herbert F. Jelinek, PhD. (2010) Increased total heart rate variability and enhanced cardiac vagal autonomic activity in healthy humans with sinus bradycardia. *Proc (Bayl Univ Med Cent)* 23(3):1-3.
  29. Slack, K., Billing, R., **Matthews**, S., Allbutt, H.N., Einstein, R. and Henderson, J.M. (2010) Subtle cardiovascular dysfunction in the unilateral 6-hydroxydopamine-lesioned rat. *Parkinsons Disease* 2010: 1-10.
  30. Hilmer, S. Mitchell, S., Perera, V. Murnion, B., Bajorek, B., **Matthews**, S., Rolfson D. (2009) The Assessment of Frailty in Older People in Acute Care. *Australasian Journal on Ageing* 28(4):182-8.
  31. Sarah J Mitchell, Bridin P Murnion, Slade T **Matthews**, Sarah N Hilmer (2009) Compliance with Paracetamol Prescribing Policies at a Sydney Hospital. *Journal of Pharmacy Practice and Research* 39 (2): 124-129.
  32. Perera, V., Bajorek, B., **Matthews**, S. and Hilmer, S. (2009) The impact of frailty on the utilisation of antithrombotic therapy in older patients with atrial fibrillation. *Age and Ageing* 38: 156-162.
  33. V. Perera, B. V. Bajorek, S. **Matthews**, and S. N. Hilmer. Warfarin can be safe and effective in the extreme elderly. *Age Ageing*, November 1, 2009; 38(6): 763 - 764.
  34. McLachlan, CS, Almshehri, Z, Deng, Y, **Matthews**, S, Mossop, P (2008) Vitamin C and mitochondrial uncoupling protein in enhanced dobutamine myocardial contractility. *American Heart Journal* 155 (4)e29.
  35. Brancatisano, T, Wahlroos, S, **Matthews**, S, Brancatisano, R (2008) Gastric Banding for the Treatment of Type 2 Diabetes Mellitus in the Morbidly Obese. *Surgery for Obesity and Related Diseases* 4(3):423-9.
  36. Gething, L., Fethney, J., McKee, K., Persson, L., Goff, M., Churchward, M., **Matthews**, S., Halvarsson, M., Johannsson, I. (2004) Validation of the Reactions to Ageing Questionnaire: Assessing Similarities Across Several Countries. *Journal Gerontological Nursing* 30(9): 47-54.
  37. Gething, L., Fethney, J., McKee, K., Goff, M., Churchward, M., and **Matthews**, S. (2002) Knowledge, stereotyping attitudes towards self ageing. *Australasian Journal on Ageing*. 21(2): 74-79.

#### **Published Conference Proceedings**

1. Marzbanrad F, Hambly B, Ng E, Tamayo M, Matthews S, Karmakar C, Khandoker AH, Palaniswami M, Jelinek HF. (2014) Relationship between Heart Rate Variability and angiotensinogen gene polymorphism in diabetic and control individuals. *Conf Proc IEEE Eng Med Biol Soc*. doi: 10.1109/EMBC.2014.6945161.
2. **Matthews, S.**, Spence, I., Jelinek, H., and McLachlan, C. (2012) Neuron Cell Classification using Machine Learning Algorithms: Methodological Considerations IASTED 2012, Austria. (DOI: [10.2316/P.2012.764-083](https://doi.org/10.2316/P.2012.764-083))
3. Ng, E., Hambly, B., **Matthews, S.**, McLachlan, C., and Jelinek H. (2012) Weka Machine Learning Classification in Identifying Autonomic Dysfunction Parameters Associated with Ace Insertion/Deletion Genotypes IASTED 2012, Austria. DOI: [10.2316/P.2012.764-084](https://doi.org/10.2316/P.2012.764-084)
4. Jelinek, H., Ahammer, H., **Matthews, S.**, Succar, P., McLachlan, C., and Buckland, M. (2012) Establishing a Reference Range for Oligodendroglioma Classification using Higuchi Dimension Analysis IASTED 2012, Austria. DOI: [10.2316/P.2012.764-039](https://doi.org/10.2316/P.2012.764-039)
5. **Matthews, S.**, Jelinek, H., McLachlan, C., Spence, I. (2008) Supervised machine learning algorithms predict "correct" classification of retinal ganglia neuron subtypes. 21<sup>st</sup> European College of Neuropsychopharmacology Congress, Barcelona, Spain. *The Journal of the European College of Neuropsychopharmacology*, Volume 18 Supplement 4, Page S218
6. Spence, I. and **Matthews, S.** (2008) Selection and Success: Are they linked? Reflections from undergraduate and graduate entry. *Proceedings of the 5<sup>th</sup> Asia Pacific Medical Education Conference*, National University of Singapore.
7. Sarah N Hilmer, Vidya Perera, Sarah Mitchell, Jonathan Dent, Bridin P Murnion, Beata Bajorek, **Slade Matthews**, Darryl B. Rolfson (2008) The assessment of frailty in older patients in acute care. *Internal Medicine Journal*. 38 Suppl 5:A128.
8. Edington, L.J., **Matthews, S.T.**, Hijazi, S., Russell, J., and Spence, I. (2004) Predicting Outcomes in Eating Disorder Patients Using Artificial Neural Networks. *Clinical and Experimental Pharmacology Physiology*, 31(s1):A124.

#### **Book Chapters**

- Voigt, A., Trompf, J., Tamayo, M., Ng, E., Zhou, Y., Lu, Y., Matthews, S., Hambly, B., Jelinek, H. (2018). Associations between Genetic Polymorphisms and Heart Rate Variability. In Herbert F. Jelinek, David J. Cornforth, Ahsan H. Khandoker (Eds.), *ECG Time Series Variability Analysis: Engineering and Medicine*, (pp.
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453-466). United States: CRC Press.

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#### FINANCIAL SUPPORT

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1. Matthews, S. (2019) Metabolism-Aware Strain-Specific Model for Ames Mutagenicity Prediction Using Multitask Deep Learning. Faculty of Medicine and Health Ignition Seed Fund Grant.
  2. Matthews, S. Lloyd, H., Van, C., Sani, B., Orr, R. (2019) Development of an ANKI card library for pharmacology foundation learning. Education Innovation Grant (USYD).
  3. Randal N, Storey-Lewis B, Hinton T, Hochuli D, Gongora J, Hanrahan J, Carroll P, Quinnell R, Pye M, McParland B, Matthews S, Mimica J, Blanchflower J; (2019) Development of Ethnopharmacology Educational Innovation Grant.(USYD)
  4. NVIDIA GPU-Cloud Titan-V Sponsorship (2018)
  5. Guastella, A., Naismith, S., Hawes, D., Einfeld, S., Glozier, N., Hickie, I., Morley, K., De Rosnay, M., Lagapolous, J., Menzies, R., Matthews, S. (2014) Clinical observation and comprehensive psychophysiological recording and behavioural coding equipment. NHMRC EQUIPMENT GRANT
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#### ACKNOWLEDGEMENTS FOR STATISTICAL PRECEPTORSHIP

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- 2008 Lau, J. Novel Genes Associated with Airway Smooth Muscle Proliferation in Asthma. PhD Thesis. The University of Sydney [Acknowledgement for technical contribution (statistical)]
- 2007 Baraket, M. Comparison of the effects of low dose and high dose inhaled corticosteroid treatment of mild to moderate asthma in adults. PhD Thesis. The University of Sydney [Acknowledgement for technical contribution (statistical)]
- 2004 Schleimer SB, Hinton T, Dixon G, Johnston GAR. GABA Transporters GAT-1 and GAT-3 in the Human Dorsolateral Prefrontal Cortex in Schizophrenia. *Neuropsychobiology* 50:226-230.[Acknowledgement for technical contribution (statistical)]
- 2003 Turner, J., Glass, B., Agatonovic-Kustrin, S. Prediction of Drug Bioavailability Based on Molecular Structure. *Analytica Chimica Acta*. 485:89-102. [Acknowledgement for technical contribution (statistical)]
- 2003 Turner, J. Application of artificial neural networks in pharmacokinetics. PhD Thesis. The University of Sydney [Acknowledgement for technical contribution (statistical)]
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#### CONSULTANCIES AND MEMBERSHIPS

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- NSW Poisons Advisory Committee (Pharmacologist member, NSW Government) 2010 - Present
  - Scientific Advisory Panel, Therapeutic Goods Administration, Australian Federal Government 2010 – Present
  - Australasian College of Toxicologists and Risk Assessors
  - Australian Society for Clinical and Experimental Pharmacologists and Toxicologists
  - Grant Review Panel, Auckland Medical Research Foundation
  - Review Editor, *Frontiers in Integrative Physiology* & *Frontiers in Autonomic Neuroscience*
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#### RESEARCH INTERESTS

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Prediction of toxicity is important for assessment of drugs during development. The cost associated with detection of drug toxicity late in drug development is enormous so it has become important to develop *in silico* models to detect toxic effects early. *Slade's group uses computer technologies to uncover new relationships in biomedical data incorporating the principles of computerised data management, machine learning techniques and complexity analysis in a pharmacology / toxicology context.*