

## **Benjamin Blaise, MD-PhD**

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b.blaise@imperial.ac.uk

### **Qualification**

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PhD in chemistry, Université de Lyon, 2010

MD in anaesthesiology and intensive care, Université de Lyon, 2013

Certificate of completion of training, Université de Lyon, 2016

2010 – 2016 : Residency program, Hospices Civils de Lyon and Université de Lyon.

2006 - 2010 : PhD student in chemistry (Dr Toulhoat and Prof Emsley), Centre de RMN à Très Hauts Champs, ENS de Lyon.

2004 –2010: Second cycle of the French medical training. Primary medical qualification.

2004 - 2006 : Master in sciences of matter, ENS de Lyon.

2001 - 2004 : Licence de chimie. Classes Préparatoires PCSI and PC\* at Lycée Henri IV, Paris and Ecole Normale Supérieure de Lyon.

1994- 2001 : Baccalauréat of Sciences, Ecole Alsacienne, Paris.

IELTS results: 8.5 (test taken on 22/10/2016)

### **Employment**

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2016-now: Research associate, Imperial College London, Faculty of medicine, Department of Surgery and Cancer, Division of Computational and Systems Medicine. **PI for the initiation of the iSleep/iCare project.**

2010-2016: Resident, Hospices Civils de Lyon and Université de Lyon.

2014-2015: Honorary research associate, Imperial College London, Faculty of medicine, Department of Surgery and Cancer, Division of Computational and Systems Medicine. **Co-PI for the MAECENAS newborn project.**

2007-2010: PhD student, Centre National pour la Recherche Scientifique.

2003-2007: Undergraduate student, Elève fonctionnaire stagiaire de l'Ecole Normale Supérieure de Lyon.

### **Grants and Awards**

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#### Scholarships:

2007 – Centre National pour la Recherche Scientifique - **€100k** – Peer-reviewed research proposal

2003 – Ecole Normale Supérieure de Lyon - **€120k** - Selective exams to enter French universities of excellence for undergraduate training (success rate=3%)

#### Grants:

2016 – PI: BJ Blaise - Tom West analytical fellowship of the Royal Society of Chemistry - **£15k** – Peer-reviewed research proposal – initiation of the iSleep/iCare project (success rate 10%)

2015 – PI: Pierre Gressens – Castang Foundation and Sparks - **£56k** - Peer-reviewed research proposal. Collaborator (success rate 12%)

2014 – PI: BJ Blaise and P Gressens - Bourse post-doctorale - Fondation pour la Recherche Médicale – **€30k** – Peer-reviewed research proposal. CoPI for the project MAECENAS Newborns (success rate 12%)

2014 – PI: BJ Blaise and P Gressens – Subvention de recherche de la Société Française d'Anesthésie et Réanimation– **€12k** - Peer-reviewed research proposal and interview. CoPI for the project MAECENAS Newborns (success rate 50%)

2014 – PI: BJ Blaise and P Gressens – Subvention de recherche de l'Association de Néonatalogie de Port-Royal – **€15k** - Peer-reviewed research proposal. CoPI for the project MAECENAS Newborns (success rate 50%)

2008 – PI: BJ Blaise and JY Scoazec - Institut National du Cancer Formation à la recherche translationnelle – **€68k** – Peer-reviewed research proposal. CoPI for the project “A functional test to assess pathogenic mutations in MEN1 cancer syndrome by High Resolution Magic Angle Spinning Nuclear Magnetic Resonance based metabonomic” (success rate=12%).

#### Awards:

2016 - Prix pour les jeunes chercheurs de la Fondation Bettencourt Schueller – **€25k** - Peer-reviewed research proposal – PI initiation of the iSleep/iCare projec (success rate 25%)

2014 – Concours Année Recherche – Centre Hospitalo-Universitaire de Lyon - **€24k** - CoPI for the project MAECENAS Newborns. Peer-reviewed research proposal (success rate 60%)

2014 – Prix Albert Sézary du jeune chercheur, lauréat de l'Académie Nationale de Médecine – **€7.5k** - CoPI for the project MAECENAS Newborns. Peer-reviewed research proposal (success rate 12%)

2014 – Prix du jeune chercheur de la ville de Lyon – **€5.4k** - CoPI for the project MAECENAS Newborns. Peer-reviewed research proposal and PhD achievements (success rate 6%)

2010 – Finalist of the DSM Science & Technology South Award. **€1.2k** – Peer-reviewed scientific reports on PhD achievements

#### ***Evidence of Esteem***

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#### Invited presentations:

1. joint European Neonatal Society 2017, Venice, invited speaker next November. Project MAECENAS Newborns
2. Gordon Research seminar on computational aspects of metabolomics NMR 2013, West Dover, invited oral presentation. Statistical analysis for metabolomics.

#### Highlighted article:

B.J. Blaise, J. Giacomotto, B. Elena, M.-E. Dumas, P. Toulhoat, L. Ségalat and L. Emsley, “Metabotyping of *Caenorhabditis elegans* reveals latent phenotypes“, *Proc. Natl. Acad. Sci. USA*, 2007, 104, 19808-19812 (IF=9.400)

Rated exceptional by the faculty of 1000.

#### Tutoring:

Marco Brillanti, PhD student, Imperial College London, Faculty of medicine, Department of Surgery and Cancer, Division of Computational and Systems Medicine.

#### Conference organizing committee:

XIème journée Rhône-Alpes de RMN, 2008, Centre de RMN à Très Hauts Champs, Lyon. Fundraising, speaker invitation, abstract selection, communication (emails and welcome package), meal selection.

#### ***Communications***

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1. Metabomeeting 2008, Lyon, oral presentation.
2. ESPN 2008, Lyon, oral presentation and poster.
3. Gordon Research seminar and conference on NMR 2009, Biddeford, oral presentation and poster.
4. Metabolomics 2011, Cairns, oral presentation.
5. Metabonomics 2014, Tsuruoka, oral presentation.

#### ***Clinical rotations in residency program***

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*Anaesthesiology for general surgery* (6 months): general anaesthesia (including RSI) for

abdominal (epidural anaesthesia and ultrasound guided TAP block), ENT, eye surgeries, endoscopies.

*Neonatology and newborn intensive care* (6 months): HFOV, umbilical catheters, CVC.

*Anaesthesiology for thoracic and cardiac surgeries for adults and newborns* (6 months): one-lung ventilation, thoracic epidural anaesthesia, ultrasound guided paravertebral block, CVC, arterial catheters, cardiopulmonary bypass

*Anaesthesiology for paediatric surgery* (6 months): inhaled induction, TAP block, epidural anaesthesia, pudendal block, ultrasound guided locoregional anaesthesia (ilioinguinal iliohypogastric block, TAP block, axillary block, hand block, femoral block), ultrasound guided CVC. Anaesthesiology for ENT, orthopaedics, abdominal, neurological, urological surgeries,

*Anaesthesiology for obstetrics* (3 months): epidural anaesthesia, rachianaesthesia, RSI for C section.

*Paediatric intensive care* (6 months): trauma, intracranial pressure captors, HFOV, NAVA ventilation, dialysis, echocardiography

*Trauma centre and surgical intensive care* (6 months): trauma, intracranial pressure captors, dialysis, echocardiography

*Anaesthesiology for cancer surgery* (6 months): Epidural anaesthesia, paravertebral block, fibroptic intubation, PICC line,

*Pre-hospital emergent care* (newborns, children and adults – 6 months): trauma, chest pain, out of hospital delivery, cardiac arrest, anaphylaxis, preterm delivery. High speed car, ambulance and helicopter missions.

*Department for congenital heart disease* (newborns, children and adults – 6 months): echocardiography, Rashkind,

*Anaesthesiology for orthopaedic surgery* (3 months): rachianaesthesia, ultrasound guided regional anaesthesia (axillary block, interscalenic block, supraclavicular block, femoral block, sciatic popliteal block)

235 night shifts as resident: anaesthesiology for emergency surgery, obstetrics, paediatrics - NICU, PICU, trauma centre.

55 night shifts as senior doctor: NICU, PICU, pre-hospital emergent care.

Anaesthesiology in private practice (children and adults): Clinique Saint Vincent de Paul, Bourgoin Jallieu.

### ***GMC registration***

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Full registration with a licence to practise and entry on the Specialist Register in anaesthetics.

GMC reference number: 7552768

Date of entry: 7/12/16

### ***Teaching***

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2011 - 2013: French medical licensing examination tutorials at the Faculté de Médecine de Lyon Sud, 20h/year

2005 - 2008 : Chemistry tutorials, Ecole du Service de Santé des Armées de Lyon. 60h/year

### ***Publications (H=11, 419 citations)***

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*As last and corresponding author*

1. E. Billoir, V. Navratil, and B.J. Blaise, Sample size calculation in metabolic phenotyping studies, *Brief. Bioinform.*, 2015, 1–7. (IF=8.399)

I designed the study, secured funding, developed the algorithm and wrote the article.

2. B.J. Blaise, Data-driven sample size determination for metabolic phenotyping studies *Anal. Chem.*, 2013, 85, 19, 8943-8950. (IF=5.886)

I designed the study, secured funding, acquired and analyzed data, developed the algorithm and wrote the article.

3. V. Navratil, C. Pontoizeau, E. Billoir and B.J. Blaise, SRV: an opensource toolbox to accelerate the recovery of metabolic biomarkers and correlations from metabolic phenotyping data sets, *Bioinformatics*, 2013, 29, 10, 1348-1349. (IF=5.766)

I designed the study, secured funding, developed the algorithm and wrote the article.

*As first author*

1. B.J. Blaise, L. Schwendimann, V. Chhor, V. Degos, M.P. Hodson, G. Dallmann, M. Keller, P. Gressens and B. Fleiss, Persistently altered metabolic phenotype following perinatal excitotoxic brain injury, *Dev. Neurosci.*, 2017 in press. (IF=3.590)

I designed the research, analyzed the data and wrote the article.

2. B.J. Blaise, G. Correia, A. Tin, J. H. Young, A.-C. Vergnaud, P. Elliott, M.R. Lewis, J.T. Pearce, J.K. Nicholson, E. Holmes and T. M. Ebbels, A novel method for power analysis and sample size determination in metabolic phenotyping, *Anal. Chem.*, 2016, 88, 10, 5179-5188 (IF=5.886)

I designed the research, secured funding, wrote algorithms, analyzed the data and wrote the article.

3. B.J. Blaise, M. Laville, F. Borson-Chazot, J.-F. Nicolas and A. Boespflug, L'Année-Recherche", un dispositif précieux pour la formation des internes à la recherche. Expérience au CHU de Lyon, *Pédagogie médicale*, 2015, 16, 4, 271-275.

I designed the research, analyzed the data and wrote the article.

4. B.J. Blaise, D. Demede, R. Dubois and O. Claris, Necrotizing enterocolitis following the surgical repair of a left congenital diaphragmatic hernia, *J. Pediatr. Surg. – Case Rep.*, 2015, 3, 4, 146-148.

I wrote this case study.

5. B.J. Blaise, B. Massenavette, E. Javouhey and B. Delafosse, *Ann. Am. Thorac. Soc.*, 2014, 11, 4, 681-683.

I wrote this case study.

6. B.J. Blaise, A. Gouel-Cheron, B. Floccard, G. Monneret, F. Plaisant, D. Chassard, E. Javouhey, O. Claris and B. Allaouchiche, Phénotypage métabolique par résonance magnétique nucléaire pour l'évaluation péri-opératoire et en réanimation, *Ann. Fr. Anesth. Reanim.*, 2013, 33, 3, 167-175 (IF=0.550).

I wrote this review.

7. B.J. Blaise, A. Gouel-Cheron, B. Floccard, G. Monneret and B. Allaouchiche, Metabolic phenotyping of traumatized patients reveals a susceptibility to sepsis, *Anal. Chem.*, 2013, 85, 22, 10850-10855 (IF=5.886)

I designed the research, acquired and analyzed data, and wrote the article.

8. B.J. Blaise, C. Lopez, C. Vercherat, A. Lacheretz-Bernigaud, M. Bayet-Robert, L. Rezig, J.-Y. Scoazec, A. Calender, L. Emsley, B. Elena-Herrmann and M. Cordier-Bussat, Metabolic expressivity of human genetic variants: NMR metabotyping of MEN1 pathogenic mutants, *J. Pharm. Biomed. Anal.*, 2013, 93, 118-124 (IF=3.680)

I designed the research, secured funding, acquired and analyzed data, and wrote the article.

9. B.J. Blaise, C.J. Fischer, A. Flatz, O. Claris, *Médecine & Enfance*, 2013, 32, 8, 281-282.

I wrote this article.

10. B.J. Blaise, C.J. Fisher, O. Claris, B. Burnand, *Médecine & Enfance*, 2012, 32, 8, 333-334

I wrote this article.

11. B.J. Blaise, O. Claris, L. Emsley, J. Etienne, F.N. Gilly, J. Samarut, P. Toulhoat et P. Cochat, *Un MD-PhD program à la française au sein de l'Université de Lyon, Pédagogie médicale*, 2012, 13, 273-283.

I wrote the article.

12. B.J. Blaise, V. Navratil, L. Emsley and P. Toulhoat, Orthogonal Filtered Recoupled STOCSY to Extract Metabolic Networks Associated to Minor Perturbations from NMR Spectroscopy, *J. Proteome Res.*, 2011, 9, 4342-4348 (IF=4.173)

I designed the study, acquired and analyzed data, developed the algorithm and wrote the article.

13. B.J. Blaise, V. Navratil, C. Domange, L. Shintu, M-E. Dumas, B. Elena, L. Emsley and P. Toulhoat, Two-dimensional Statistical Recoupling for the Identification of Perturbed Metabolic Network from NMR Spectroscopy, *J. Proteome Res.*, 2010, 11, 4513-4520 (IF=4.173)

I designed the study, acquired and analyzed data, developed the algorithm and wrote the article.

14. B.J. Blaise, L. Shintu, B. Elena, L. Emsley, M-E. Dumas and P. Toulhoat, Statistical recoupling prior to significance testing in NMR based metabonomics, *Anal. Chem*, 2009, 81, 6242-6251 (IF=5.886)

I designed the study, acquired and analyzed data, developed the algorithm and wrote the article.

15. B.J. Blaise, J. Giacomotto, M. N. Triba, M. Piotto, P. Toulhoat, L. Emsley, L. Ségalat, M.-E. Dumas, and B. Elena, Metabolic Profiling Strategy of *Caenorhabditis elegans* by Whole-Organism Nuclear Magnetic Resonance, *J. Proteome Res.*, 2009, 8, 2542-2550 (IF=4.173)

I designed the study, acquired and analyzed data, and wrote the article.

16. B.J. Blaise, J. Giacomotto, B. Elena, M.-E. Dumas, P. Toulhoat, L. Ségalat and L. Emsley, "Metabotyping of *Caenorhabditis elegans* reveals latent phenotypes", *Proc. Natl. Acad. Sci. USA*, 2007, 104, 19808-19812 (IF=9.400)

I designed the study, acquired and analyzed data, and wrote the article.

#### *As contributing author*

1. F. Moriceau, J. Prothet, B.J. Blaise, B. Ben Said, M. Page, C.-E. Ber, J. Crozon and T. Rimmelé, DRESS syndrome in the ICU: when polypharmacy becomes your enemy, *Case Rep Crit Care*. 2016; 2016: 9453286.

I wrote the article.

2. F. Reverdy, B.J. Blaise, B. Delwarde, G. Begou and T. Rimmelé, Combined interscalene-superficial cervical plexus block for clavicle surgery: an easy technique to avoid general anesthesia, *Brit. J. Anaesth.*, e-letter, 14 October 2015 (IF=5.616)

I wrote the article.

3. C. Chassery, J.-C. Bouchut, S. Courtil-Teyssedre, B.J. Blaise and P.-Y. Gueugniaud, Ventilation of severe bronchiolitis in interhospital transport: a place for high frequency oscillatory ventilation? *Pediatr. Anesth*, 2015, 25 ,6, 643-644 (IF=2.082)

I wrote the article.

4. E. Jobard, C. Pontoizeau, B.J. Blaise, T. Bachelot, B. Elena-Herrmann, O. Trédan. A serum nuclear magnetic resonance-based metabolomic signature of advanced metastatic human breast cancer, *Cancer Lett.*, 2013, 343, 1, 33-41 (IF=5.992)  
I designed the research, acquired and analyzed data, and reviewed the article.

5. A. Migeon, F.-P. Desranges, D. Chassard, B.J. Blaise, M. De Queiroz, J.-C. Cejka, S. Combet and O. Rhondali, Pupillary reflex dilatation and analgesia nociception index monitoring to assess the effectiveness of regional anesthesia in children anesthetised with sevoflurane. *Pediatr. Anesth.*, 2013, 23, 12, 1160-1165 (IF=2.082)  
I analyzed data and wrote the article.

6. J. Neidecker, B.J. Blaise et J. Ninet, Embolie gazeuse d'origine veineuse chez un enfant, *Ann. Fr. Anesth. Reanim.*, 2012 May;31 Suppl 1:S12-3 (IF=0.550)  
I reviewed the article.

7. L. Shintu, R. Baudoin, V. Navratil, J.-M. Prot, C. Pontoizeau, M. Defernez, B.J. Blaise, C. Domange, A. Pery, P. Toulhoat, C. Legallais, C. Brochot, E. Leclerc, M.-E. Dumas, Metabolomics-on-a-Chip and Predictive Systems Toxicology in Microfluidic Bioartificial Organs, *Anal. Chem.*, 2012,4, 1840-1848 (IF=5.886)  
I provided algorithms and reviewed the article.

8. J.B. Cazier, P.J. Kaisaki, K. Argoud, B.J. Blaise, K. Veselkov, T.M.D. Ebbels, O. Beckonert, T. Tsang, Y. Wang, M.T. Bihoreau, S.C. Mitchell, E.C. Holmes, J.C. Lindon, J. Scott, J.K. Nicholson, M.-E. Dumas and D. Gauguier, Novel and Robust Untargeted Metabonome Quantitative Trait Locus Mapping Method Associates Variation in Urine Glycerate to Mutant Glycerate Kinase, *J. Proteome Res.*, 2012, 2, 631-642 (IF=4.173)  
I provided algorithms and reviewed the article.

9. I.F. Duarte, Lamegol., J. Marques, M.P.M. Marques, B.J. Blaise and A.M. Gil, Nuclear Magnetic Resonance (NMR) Study of the Effect of Cisplatin on the Metabolic Profile of MG-63 Osteosarcoma Cells. *J. Proteome Res.*, 2010, 11, 5877-5886 (IF=4.173)  
I analyzed data and reviewed the article.

10. E. Jobard, O. Tredan, B. Elena, B.J. Blaise and T. Bachelot, Metabolomics: a novel tool for translational research in oncology, *Oncologie*, 2010, 12, 409-415 (IF=0.066)  
I reviewed the article

*Book chapter:*

"Anesthésie du nouveau-né" in "Principes et protocoles en anesthésie pédiatrique", 3<sup>rd</sup> edition 09/2014, Arnette.