

PHILIPP BAUMERT

KEY WORDS: Exercise prevention and rehabilitation, skeletal muscle physiology, skeletal muscle cell culture, exercise-induced muscle damage, sports-related injuries, menstrual cycle, genetics, metabolomics, stable isotope tracing.

SCIENTIFIC APPOINTMENTS

- Since 09/2023 **Scientific Director of the Research Unit for Orthopaedic Sports Medicine and Injury Prevention at the UMIT Tirol (Austria)**
Scientific Director and Deputy Head of the Research Unit, leading research initiatives aimed at preventing ACL injuries, enhancing rehabilitation effectiveness, and optimising ACL injury surgeries.
- Since 04/2023 **Visiting Lecturer at the Liverpool John Moores University (UK)**
Co-Principal Investigator of the 'FEGEMI' project together with 5 partners of three countries (Germany, UK and Spain) supported by EU and IOC grants. See "Scholarship" section.
- 02/2019 – 03/2023 **Postdoctoral Fellow at the Technical University of Munich (Germany), Department of Sport and Health Sciences, Chair of Exercise Biology.**
By using $^{13}\text{C}_6$ -glucose isotopes and mass spectrometry-based metabolomics, I investigate whether a skeletal muscle undergoes a Warburg-like metabolic remodelling during muscle growth.
- 10/2021 – 12/2021 **JYU Visiting Fellow at the University of Jyväskylä (Finland)**
Host: Prof Dr Juha Hulmi. See "Scholarship" section.
- 09/2014 – 04/2018 **Teaching assistant at the Liverpool John Moores University (UK)** in level 4, 6 (B.Sc.) and in level 7 (M.Sc.) seminars, and in laboratory/practical classes.
Taught undergraduate seminars and supervised students during discussion, laboratory sessions and exams.
- 07/2014 – 02/2015 **Internship at the Liverpool John Moores University (UK), Research Institute for Sport and Exercise Sciences, Department of Exercise Metabolism and Adaption, Cellular and Molecular Adaptions of muscle (Dr Erskine).**
See "Scholarship" section.
- 06/2011 – 10/2011 **Internship at the Max-Delbrück-Centre** for Molecular Medicine in Berlin-Buch (Germany), Department of Molecular Muscle Physiology.
- 09/2009 – 12/2009 **Internship at the Institute of Cardiovascular Research and Sport Medicine**, German Sport University Cologne, Department of Molecular and Cellular Sport Medicine.
- 02/2008 – 03/2008 **Test executives for Max Rubner-Institute/** Federal Institute for school sports (Germany)

EDUCATION

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| 04/2015 – 03/2019 | <p>PhD, John Moores University Liverpool (UK) in the area of genetic variation and exercise-induced muscle damage [Dr Robert Erskine (DOS), Prof Claire Stewart, Dr Mark Lake and Prof Barry Drust].</p> <p>PhD award: 11th March 2019</p> <p><i>Investigation of the genetic association with exercise-induced muscle damage via an interdisciplinary approach (genetic, cellular, physiological and biomechanical analyses) supported by the LJMU PhD fellowship. See “Scholarship” section.</i></p> |
| 05/2015 – 02/2016 | <p>Ideas, Insights & Information (3is) programme, John Moores University Liverpool (UK)</p> <p>Associate Fellow of the Higher Education Academy (HEA)</p> |
| 10/2010 – 08/2013 | <p>Master Sports Medical Training & Clinical Exercise Physiology, Johann Wolfgang Goethe-University Frankfurt/Main (Germany).</p> <p>Final grade 1.5 (Distinction)</p> <p>Master`s thesis "The E56G mutation of VLC-1 reduces force generation of cardiac skinned fibres". Max-Delbrück-Centre for Molecular Medicine in Berlin-Buch (Germany), Department of Molecular Muscle Physiology (Prof Morano/ Prof Schmidtbleicher)</p> <p>grade 1.1 (Distinction)</p> |
| 10/2007 – 08/2010 | <p>Bachelor Sport and Performance, German Sports University of Cologne (Germany).</p> <p>Final grade 2.0 (Upper Second Class)</p> <p>Bachelor`s thesis “Effects of 19-Norandrostenedione on C2C12 cells“. Institute of Cardiovascular Research and Sport Medicine, German Sport University Cologne, Department of Molecular and Cellular Sport Medicine (Prof Bloch)</p> <p>grade 1.7 (Upper Second Class)</p> |

SCHOLARSHIP/ AWARDS

Main applicant until further information is provided.

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| 01/2023– 12/2025 | <p>[Co-Applicant] International Olympic Committee (IOC) Medical and Scientific Research Fund</p> <p><i>The IOC funding sustains the 'FEGEMI' project for two years that was previously supported by the Erasmus+ Small Collaborative Partnerships (please see below)</i></p> | € 60,000 |
| 14/2022– 03/2023 | <p>TUM Seed Fund affiliated with the Technical University of Munich</p> <p><i>The TUM university administration supports my research in preparing further grant applications</i></p> | € 20,000 |
| 10/2021– 12/2021 | <p>JYU Visiting Fellowship at the University of Jyväskylä (Finland)</p> | € 6,000 |

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| | <i>Host: Prof Dr Juha Hulmi. The objective of this project was to study the glucose regulation and function in hypertrophying skeletal muscles cells in vitro.</i> | |
| 04/2021 | DOSB Science Prize in Silver for the PhD thesis <i>Every two years, the German Olympic Sports Confederation (DOSB) awards the DOSB “Wissenschaftspreis” for outstanding sports science qualification work.</i> | € 2,500 |
| 06/2020 | [Co-Applicant] Deutsche Diabetes Stiftung <i>Two-year grant to investigate how metabolism changes during muscle hypertrophy and its implications for diabetes risk reduction in aging individuals.</i> | € 9,015 |
| 01/2021– 12/2023 | Erasmus+ Small Collaborative Partnerships <i>Principal applicant of a three-year grant together with 5 partners of three countries (Germany, UK and Spain). The aims of the ‘FEGEMI’ project are to investigate novel injury risk factors in female soccer players, and to educate athletes and coaches in effective management of those risks.</i> | € 60,000 |
| 02/2020 – 03/2022 | Eurotech Postdoctoral Fellowship (Marie Skłodowska-Curie COFUND) <i>Principal applicant for this two-year funding to investigate whether a hypertrophying muscle undergoes a Warburg-like metabolic remodelling by using mass spectrometry-based metabolic flux analysis.</i> | € 144,000 |
| 09/2019– 8/2020 | Funding for a Departmental Seminar Scheme of the Physiological Society <i>Principal applicant that supported the initiation of a new departmental seminar scheme at the Department of Sport and Health Sciences of the Technical University of Munich.</i> | € 600 |
| 02/2019 | Travel grant of Bund der Freunde , affiliated with the Technical University of Munich <i>Support for the four-day Workshop “Introduction to Metabolomics Analysis Workshop” at the European Bioinformatics Institute (EMBL-EBI) near Cambridge.</i> | € 400 |
| 02/2019 – 01/2020 | TUM Foundation Fellowship (TUFF) of the Technical University of Munich <i>Principal applicant of this one-year funding by TUM. The TUM offers scholarship holders sufficient freedom to initiate new interdisciplinary research projects together with professors.</i> | € 31,800 |

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| 11/2018 – 01/2019 | Travelling Fellowship of the Company of Biologists at the Technical University of Munich at the Chair of Exercise Biology (Germany/ Prof Henning Wackerhage) <i>Postdoc project “Metabolomics and Skeletal Muscle Hypertrophy” with Prof Henning Wackerhage in collaboration with the Bavarian Center for Biomolecular Mass Spectrometry (BayBioMS).</i> | € 2,700 |
| 11/2018 – 01/2019 | Erasmus+ Placement Scholarship at the Technical University of Munich (TUM) at the Chair of Exercise Biology (Germany/ Prof Henning Wackerhage) | € 1,100 |
| 04/2018 | Affiliate Travel Grant of the Physiological Society for the ECSS conference (Dublin, Ireland) 2018 | € 600 |
| 11/2017 | Travel Grant for the Research Opportunities Week (ROW) at the Technical University of Munich in April 2018 | |
| 05/2017 – 07/2017 | Wellcome Trust Biomedical Vacation Scholarship <i>Supervised an undergraduate student for an 8-weeks internship with the title “Human Muscle Wound Repair. An Association between Genetic Variation and Stem Cell Migration?”..</i> | € 2,400 |
| 05/2017 | PGR Conference Travel Fund of the Liverpool John Moores University | € 400 |
| 04/2017 | Affiliate Travel Grant of the Physiological Society for the ECSS conference (Essen, Germany) | € 600 |
| 01/2017 | The invited review [Baumert et al. (2016)] was listed in the most frequently downloaded 2016 papers published in EJAP | |
| 08/2016 | Listed as an excellent PhD student of the Doctoral Academy at the Liverpool John Moores University during 2015/2016 academic year | |
| 06/2016 | First place overall oral presentation winner at the Liverpool John Moores University <i>Faculty of Science - Post Graduate Research Seminar and Poster Day</i> | € 900 |
| 04/2015 – 03/2018 | Fully-funded three-year PhD scholarship of the Liverpool John Moores University (UK) <i>The Genetic Association with Muscle Damage</i> | € 72,000 |
| 08/2014 – 01/2015 | Scholarship ‘Leonardo da Vinci’ , European Commission (LLP) for the Project ‘ <i>The Genetic Association with Muscle Damage</i> ’. Supervisor: Dr Robert Erskine, Liverpool John Moores University | € 8,000 |
| TOTAL AMOUNT OF GRANTS | | € 423,015 |

TEACHING

- Since 03/2021 **Lecturer at the Technical University of Munich** (TUM; Germany)
4th Semester (B.Sc.) in seminars
Taught scientific poster presentations and supervised students during their internships
- 12/2021 **Visiting Lecture at the Lapland University of Applied Sciences** (AMK; Finland)
Topic: Strenuous exercise and injury risk for MSc students (Dr Heikki Hannola).
- 01/2019 **Visiting Lecture at the Technical University of Munich** (TUM; Germany)
Topic: The (Mal-)Adaptation to Acute and Chronic Strenuous Exercise for MSc students (Prof Henning Wackerhage).
- 09/2017 – 04/2018 **Teaching assistant at the Liverpool John Moores University** (UK)
in level 7 (M.Sc.) laboratory and practical classes – MSc Strength & Conditioning (Dr Rob Erskine)
Assisted in teaching of ultrasound techniques and deeper knowledge of muscle architecture during laboratory session.
- 09/2014 – 04/2018 **Teaching assistant at the Liverpool John Moores University** (UK)
in level 6 (B.Sc.) Lecture series "Skeletal Muscle Physiology, Metabolism & Nutrition" (Dr Sam Shepherd) and in level in level 4 (B.Sc.) laboratory and practical classes (Dr Rob Erskine & Dr Matt Cocks)
Taught undergraduate seminars and supervised students during discussion, laboratory sessions and exams. During the practical classes, I assisted in teaching of muscle architecture and electrical stimulation during laboratory sessions.

INVITED TALKS

- Baumert, P.,** Owens, D., Lautaqja, J. C. (2022). *Invited Symposia "Metabolomics in Sports and Exercise Science"* – Can Metabolomics reveal novel metabolites and metabolic pathways associated with muscle hypertrophy? *European College of Sport Science (ECSS, presentation in Seville, Spain).*
- Baumert, P.,** (2021). How to get a TUM Global Postdoc Fellowship? *Invited talk for the TUM Research Opportunities Week (virtual presentation).*
- Baumert, P.,** (2020). How to get a TUFFellowship and how to proceed after this? *Invited talk for the TUM Research Opportunities Week (presentation in Munich, Germany).*
- Baumert, P.,** Temple, S. Lake, M. J., Stewart, C. E., Drust, B., & Erskine, R. M. (2017). The Risk of Muscle Damage and Injury in Soccer: The Genetic Basis of Variability to Strenuous Exercise. *Invited speaker for STATS Workshop for Performance Analysis (Liverpool, UK).*

OTHER CONFERENCE PROCEEDINGS

- Baumert, P.,** Mäntyselkä, S., Kleigrew, K., Meng, C., Huber, M., Schönfelder, M., Hulmi, J., Wackerhage, H. (2023). Metabolic remodeling during skeletal muscle hypertrophy: role of glycolysis-derived intermediates in anabolic pathways. *16th International Cachexia Conference (SCWD, Stockholm, Sweden)*.
- Baumert, P.,** Kleigrew, K., Meng, C., Huber, M., Schönfelder, M., Wackerhage, H. (2022). Metabolic Reprogramming of Hypertrophying Skeletal Muscles in Mice. 25. *Sportwissenschaftlichen Hochschultag der Deutschen Vereinigung für Sportwissenschaft (dvs, Kiel/ virtual presentation)*.
- Baumert, P.,** Kleigrew, K., Meng, C., Schönfelder, M., Wackerhage, H. (2021). The cancer-like metabolic reprogramming during skeletal muscle growth. *European College of Sport Science (ECSS, virtual presentation)*.
- Baumert, P.,** Temple, S. Lake, M. J., Stewart, C. E., Drust, B., & Erskine, R. M. (2020). Effects of muscle-damaging exercise on physiological parameters in vivo and in vitro. 54. *Atmungs- und Leistungsphysiologische Arbeitstagung (presentation in Munich, Germany)*.
- Baumert, P.,** Strauss J., Shepherd S.O., Cocks M., Lake, M. J., Drust, B., Stewart, C. E., Erskine, R. M. (2019). Individual and Combined Genetic Variations are Associated with in vivo and in vitro Muscle Damage in Humans: a Genetic Approach to Elucidate the Mechanisms Underpinning the Response to Exercise-Induced Muscle Damage. *Future Physiology of the Physiological Society (presentation in Liverpool, UK)*.
- Baumert, P.,** Schönfelder, M., Verbrugge, S.A.J., Wackerhage, H. (2019). Beyond the Warburg Effect in Cancer: The Metabolism of Glucose in Hypertrophying Skeletal Muscle Determined by 13C-Fluxomics. *Hypertrophie-Meeting (presentation in Raitenhaslach, Germany)*.
- Baumert, P.,** Temple, S. Lake, M. J., Stewart, C. E., Drust, B., & Erskine, R. M. (2018). The Effect of Repeated Sprints on Hamstring Muscle Damage and Running Kinematics: An Interdisciplinary Study. *European College of Sport Science (ECSS, presentation in Dublin, Ireland)*.
- Stanley, M., **Baumert, P.,** Erskine, R. M., & Stewart, C. E. (2018). Cellular Migration Following in vitro Mechanical Wound Injury for Identifying Differences in Gender. *BASES Student Conference (Northumbria University, UK)*.
- Baumert, P.,** Temple, S. Lake, M. J., Stewart, C. E., Drust, B., & Erskine, R. M. (2017). Individual Risk to Muscle Damage: The Genetic Basis of Variability to Strenuous Exercise. *European College of Sport Science (ECSS, presentation in Essen, Germany)*.
- Johnson, K.O., Edwards, V., **Baumert, P.,** & Erskine, R. M. (2016). The Role of the ACTN3 Genotype on Exercise-Induced Muscle Damage and Recovery. *BASES Student Conference (Bangor University, UK)*.
- Baumert, P.,** Lake, M. J., Stewart, C. E., Drust, B., & Erskine, R. M. (2016). The Genetic Variation Association with the Rate of Skeletal Muscle Recovery Following Maximal Eccentric Exercise. *Congress of Sports Medicine of the German Association of Sports Medicine (DGSP, presentation in Frankfurt/Main, Germany)*.

Willkomm, L., Nabel, L.A., **Baumert, P.**, Parr, M.K., Bloch, W. (2012). The influence of 19-norandrostendione on the proliferation and differentiation of C2C12 myoblasts. 43. *Congress of Sports Medicine of the German Association of Sports Medicine (DGSP, presentation in Berlin, Germany).*

SCIENTIFIC RESPONSIBILITIES

Scientific Societies

- Founder and Secretary of the “Molecular Exercise Physiology Group”
- Sprecherrat "Kommission Wissenschaftlicher Nachwuchs“ (dvs)
- Representative of the Physiological Society
- Member of the European College of Sport Science (ECSS)

Academic Editor - PLOS ONE

Reviewer for Journals

- Experimental Gerontology
- Frontiers in Physiology
- International Journal of Sports Physiology and Performance
- Journal of Human Kinetics
- Journal of Science and Medicine in Sport
- Physiological Reports
- Scandinavian Journal of Medicine & Science in Sports
- Translational Sports Medicine

Reviewer for Granting Agencies

- Israel Science Foundation (Research Grant Application)
- South Africa Foundation (Evaluating the Quality of a Researcher)

<https://publons.com/researcher/3917840/philipp-baumert/>

COOPERATIONS

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| Dr Rob M. Erskine | Liverpool John Moores University (UK) |
| Prof Claire Stewart | Liverpool John Moores University (UK) |
| Prof Henning Wackerhage | Technical University of Munich (Germany) |
| Dr Karin Kleigrew | Technical University of Munich (Germany) |
| Prof Christian Fink | UMIT-Tirol (Austria) |
| Prof Barry Drust | University of Birmingham (UK) |
| Prof Juha Hulmi | University of Jyväskylä (Finland) |
| Prof Kenneth Smith | University of Nottingham (UK) |
| Prof Susana María Gil | Universidad del País Vasco (Spain) |
| Prof Aivaras Ratkevicius | Lithuanian Sports University (Lithuania) |
| Prof Lars Keld Nielsen | Technical University of Denmark (Denmark) |

PRESS COVERAGE

- 06/2023 Multiple international newspapers have written about Singh et al. (2023) “Taurine deficiency as a driver of aging” (e.g. ZEIT or BBC)
- <https://www.bbc.com/news/health-65810138>
- 04/2023 Warum bekomme ich keinen Muskelkater? (FAZ)
- <https://www.faz.net/aktuell/sport/sport-tipps/sport-tipps-fuer-laeufer-wann-bekomme-ich-muskelkater-18818298.html>
- 02/2023 Interview about Muscle Memory (Radio M945)
- 07/2022 Häufiges Tabuthema: Wie sich die Periode auf die Leistung von Profisportlerinnen auswirkt (Schwäbische Zeitung)
- https://www.schwaebische.de/sport/ueberregionaler-sport_artikel,-haeufiges-tabuthema-wie-sich-die-periode-auf-die-leistung-von-profisportlerinnen-auswirkt-_arid,11533714.html
- 09/2021 Geschlechterspezifische Verletzungen (B42 App)
- https://b42-website-prod.azurewebsites.net/post/geschlechterspezifische_verletzungen
- 05/2021 Die größte Verletzungsgefahr droht bei Sprints (Merkur)
- <https://www.merkur.de/sport/amateur-fussball/landkreis-muenchen/garching-groesste-verletzungsgefahr-droht-bei-sprints-13965717.html>
- 04/2021 DOSB Wissenschaftspreis vergeben
- (ZEIT)<https://www.zeit.de/news/2021-04/26/dosb-vergibt-wissenschaftspreis-an-darmstaedter-felix-kuehnle>
- (SZ)<https://www.sueddeutsche.de/sport/dosb-wissenschaftspreise-vergeben-1.5276945>

WORKSHOPS

- 08/2022 Techniques Workshop: The Application of Stable Isotope Tracer Techniques in Human Physiological Research *at the University of Nottingham (UK)*
- 01/2021 Building and Managing Your Research Group *at the Technical University of Munich (Germany)*
- 06/2020 Project management in the field of research & development *at the Technical University of Munich (Germany)*
- 10/2019 Doctoral Supervisor Training *at the Helmholtz Centre Munich (Germany)*
- 02/2019 Introduction to Metabolomics Analysis Workshop *at the Wellcome Genome Campus, Hinxton, Cambridge (UK)*
- 09/2018 Metabolomics Pipeline Workshop *at the University of Liverpool (UK)*
- 04/2017 Gene Expression Workshop *at the University of Liverpool, Centre of Genomic Research (UK)*
- 06/2012 Myograd Summer School for Myology *at the Max-Delbrück-Centre, Berlin (Germany)*

CERTIFICATIONS & TRAINING

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| Certificates | Phlebotomist (2015 UK & 2023 Germany) Fitness Trainer A Licence (DFLV) (2011) DSL V Snowboard Instructor (2008) |
| Languages | German native language English fluent Latin qualification in Latin |
| Interests | Various sports such as running, snowboarding, weightlifting Competitive swimming until 6/2010 (SG Swim Team Cologne) & Travelling |

JOURNAL ARTICLES

Please see ORCID iD: <https://orcid.org/0000-0002-5463-1954>