

Dr Roderick Simon Patrick Benson

Biotech Industry Expert & University Educator

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🌐 [bensonium.com](https://www.bensonium.com)

Professional Summary

Accomplished scientist and entrepreneur with unique combination of 16+ years building biotech companies and proven university teaching excellence. Brings real-world industry experience to academic settings, having co-founded and scaled Imagen Therapeutics from startup to £1.7M revenue. Passionate about developing the next generation of biological scientists with practical knowledge of modern biotechnology, drug discovery, and technology commercialization.

Teaching Experience & Philosophy

Part-time Lecturer | *University of Manchester* | 2022 - 2023

Biological Sciences (2nd Year) & Problem-Based Learning Medical Students (1st/2nd Year)

Teaching Excellence:

- Developed innovative 2nd year biomedical tutorials addressing real experimental challenges using 5+ years of student glucose tolerance test data
- Ran 1st and 2nd year medicine Problem Based Learning Tutorials
- Successfully supported student career transitions: helped one transfer to dentistry, another to medicine
- Secured university admission for Ukrainian refugee through direct advocacy
- Consistently positive student feedback across all teaching modules

Pedagogical Innovation:

- Created data analysis tutorial investigating statistical anomalies in large biological datasets (<https://bensonium.com/pwsb/datapres>)
- Integrated industry perspectives into traditional curriculum delivery



Key Teaching Areas:

- Experimental design and data analysis
- High-throughput biological techniques
- Technology commercialization pathways
- Modern drug discovery processes

Primary Mathematics Education | *Multiple Roles* | 2019 - 2023

Magical Maths Franchise Manager (2019-2023)

- Delivered engaging after-school mathematics clubs for primary students
- Developed marketing strategies and managed team of tutors
- Awarded "Best Customer Service Franchisee" 2021

Prove It Mathematics Club Founder (2023-Present)

- Created advanced mathematics club for gifted Year 5-7 students
- Developed curriculum teaching mathematical proofs ($\sqrt{2}$ irrationality proof)
- Focused on logical thinking development for future scientists
- See <https://benonium.com/algebraclub/>



Industry Experience - Bringing Real-World Context to Academia

Chief Operating Officer | *Dominion Biotech* | 2023 - present

Cancer drug discovery using patient-derived cell models

- Leading laboratory operations and service delivery
- Provides current industry insights for student career preparation
- Demonstrates ongoing connection to cutting-edge biotechnology

Founded Bensonium Limited 2019

A small enterprise offering software and mathematics club

- February 2024 – August 2025: Completely Refactored and documented a new version of The Platemaker Wizard, a data analysis program I began developing in AstraZeneca and continued to perfect in Imagen Therapeutics. Now available on my website (<https://benonium.com/the-platemaker-wizard/>)



CEO & COO | *Imagen Therapeutics* | 2007 - 2017

Biotech company: High-content screening & personalized medicine

Business Achievement:

- Scaled company from £50K overdraft to £1.7M annual revenue
- Raised £2M+ through multiple funding rounds
- Built team from 3 founders

Technical Innovation:

- Developed personalised chemotherapy screening using patient biopsies
- Created novel high-content screening methodologies
- Programmed Hamilton liquid handling robot to automate 384 laboratory assays
- Published peer-reviewed research demonstrating clinical applications

Educational Value for Students:

- Real case study in technology commercialization
- Practical examples of academic-industry partnerships
- Understanding of biotech business models and funding
- Good working knowledge of laboratory automation

Senior Scientist | AstraZeneca | 2003 - 2007

Systems biology approach to drug discovery

- Managed advanced imaging facility and high-content screening operations
- Supervised multiple junior scientists and students
- Gained Big Pharma perspective on modern drug discovery
- Negotiated Imagen Biotech spinout with AstraZeneca Senior management resulting in a £400K equipment donation to Imagen Biotech

Independent Researcher | University of Manchester | 2001 - 2003

£83K Wellcome Showcase Award for LADDERS technology

- Managed independent research grant and laboratory
- Developed novel protein detection technology with commercial potential
- Filed patent applications and worked with technology transfer teams

Postdoctoral Research Associate | University of Manchester | 1997 - 2000

3-year project to determine how medium-long chain fatty acids induce the secretion of cholecystokinin (CCK) from enteroendocrine cells

- Administer the scientific execution of the project and communication of progress to the project's grant holders
- Supervised PhD student and research technician
- Continued work on my own research examining the role of intracellular acidification in promoting apoptosis

Ph.D. student | University of Manchester | 1993 – 1996

See Academic Credentials

Data Manager | Drug and Alcohol Unit Westmead Hospital | 1989 – 1992

Managed patient clinical data and developed helped computerise psychological research instruments

- Developed a relational database to hold patient data
- Created the first departmental computer network on the Novell Platform

Tertiary Education | University of Sydney | 1985 - 1988

4th year honours research and project dissertation (1988): The Interactions between Schwann Cells and Motoneurons in Tissue Culture and the Effect of Schwann Cells on the Motoneurons Cytoskeletal Proteins.

Academic Credentials

Ph.D. Physiology (Cancer Biology) | University of Manchester | 1996

Thesis: A Study of the Physiological Changes which Occur in Cells Dying by Apoptosis

B.Sc. (Hons) Physiology, First Class | University of Sydney | 1989

See tertiary education above

Unique Value Proposition for University Teaching

Modern Biotechnology Expertise

Students today need understanding of high-throughput experimental techniques (high-content analysis, robotics, data management) that are standard in industry but often absent from traditional curricula. My hands-on experience provides authentic insight into these critical technologies.

Commercialization Knowledge

Many science graduates will work in industry or small biotech companies. My experience raising investment, managing customer relationships, and navigating regulatory requirements provides valuable career preparation that few academic staff can offer.

Bridge Between Academia and Industry

Having worked in universities, big pharma, and biotech startups, I can help students understand diverse career pathways and prepare them for the realities of science careers beyond academia.

Student Development Focus

Proven track record helping students achieve career transitions demonstrates commitment to individual student success and career development.

Proposed Teaching Contributions

Core Modules:

- Experimental design and high-throughput techniques
- Cancer biology and drug discovery
- Data analysis and statistical applications
- Technology commercialization in life sciences

Student Development:

- Career guidance for industry transitions
- Research project supervision
- Industry placement coordination
- Graduate employment preparation

Curriculum Development:

- Integration of modern biotechnology techniques
 - Case studies from successful biotech companies
 - Understanding of regulatory and clinical development
 - Entrepreneurship and innovation modules
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Voluntary activities with Students

- **2000 – 2004** Leader of Holy Trinity Platt, Church Student Bible study. This involved organising a teaching managing a leadership team and general pastoral care of Christian university students.
 - **2018 – 2019** Visiting lecturer who supervised Masters students in Cabtal Cameroon.
 - **2023 – Present** Helping to run Job Christians Against Poverty Job Club at Holy Trinity Platt Church. When this program is in operation, it runs for half a day once a week.
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Professional Development & Awards

- **Best Customer Service Award** (2021) - Demonstrates commitment to excellence
 - **Wellcome Showcase Award** (2001) - £83K independent research funding
 - **BBSRC Biotechnology YES** - 2nd place national final (1999)
 - Ongoing professional development in education and business management
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Additional Qualifications

Risk Assessment & Laboratory Safety: Extensive COSHH and laboratory management experience

International Perspective: Worked across UK and Australia; supervised students in Cameroon

Technology Skills: Advanced data analysis, microscopy, robotics, laboratory automation

Publications & Research Impact

Patents

- (1) **Benson, R.S.P.** (2001) Intracellular Analysis “LADDERS” (to the Victoria University of Manchester) UK Patent 0108165.2, issued 2nd April 2001.
- (2) **Benson, R.S.P.** (2002) Intracellular Analysis “LADDERS” (to the Victoria University of Manchester) International Patent application PCT/GB02/01235, filed 2nd April 2002.

Book

- (1) The Wormwood Deceptions by **R.S.P Benson** (2020): ISBN: 9798643501121

Refereed papers

- (1) Batey, R.G.; Burns, T.; **Benson, R.S.P.**; Byth, K. (1992): Alcohol consumption and risk of cirrhosis. *Med. J. Aust.* 156(6), 413-416.
- (2) Watson, A.J.M.; Askew, J.N.; **Benson, R.S.P.** (1995): Poly(Adenosine diphosphate ribose) Polymerase inhibition prevents necrosis induced by H₂O₂ but not apoptosis. *Gastroenterology* 109, 472-482.
- (3) **Benson, R.S.P.**; Heer, S.; Dive, C.; Watson, A.W. (1996): Characterisation of cell volume loss in CEM-C7A cells during dexamethasone-induced apoptosis. *Am. J. Physiol.* 270, C1190-C1203.
- (4) Chen, Q.C.; **Benson, R.S.P.**; Whetton, A.D.; Brant, S.R.; Donowitz, M.; Montrose, M.H.; Dive, C.; Watson, A.J.M. (1997): Role of acid/base homeostasis in the suppression of apoptosis in haemopoietic cells by v-Abl protein tyrosine kinase. *J. Cell Sci.* 110, 379-387.

- (5) Brunet, C.L.; Gunby, R.H.; **Benson, R.S.P.**; Hickman, J.A.; Watson, A.J.M.; Brady, G. (1997): Commitment to clonogenic BCL-2regulated cell death in a human lymphoid cell line is unaffected by caspase inactivation. *Cell Death & Diff.* 5(1), 107-115.
- (6) **Benson, R.S.P.**; Dive, C.; Watson, A.J.M. (1998): Comparative effects of Bcl-2 expression and caspase inhibition on structural and biochemical features of apoptosis. *Cell Death & Diff.* 5(5), 432-438
- (7) **Benson, R.S.P.**; Dive, C.; Watson, A.J.M. (1999): Cytoplasmic acidification is not an effector mechanism of VP16 or DEXinduced apoptosis in CEM T leukaemia cells. *J. Cell. Sci.* 112, 1755-1760
- (8) Sidhu, S.S.; Case, R.M.; Warhurst, G.; Thompson, D.G.; **Benson R.S.P.*** (2000): Fatty acid-induced changes in intracellular calcium in STC-1 and GLUTag cells. *J. Physiol.*, 528(1), 165-176
- (9) Sheader, E.A.; **Benson, R.S.**; Best L. (2001): Cytotoxic action of methylglyoxal on insulin-secreting cells. *Biochem Pharmacol.* 61(11), 1381-1386
- (10) **Benson R.S.P.***; Sidhu S.S.; Jones, M.N.; Case, R.M.; Thompson, D.G. (2002): Fatty acid signalling in a mouse enteroendocrine cell line involves fatty acid aggregates rather than free fatty acids. *J. Physiol.* 538(1), 121-131
- (11) Kazmi S, Sidhu S.S, Donohoe T.J, Wickham M*, Jones M.N, Thompson D.G, Case R.M and **Benson R.S.P.*** (2003): Calcium mobilisation and CCK secretion induced by modified fatty acids and Latex microspheres reveal dual receptor mechanisms for lipid stimulation of STC-1 cells. *J. Physiol.* 553(3), 759-773
- (12) Hendriks, B.S.; Griffiths, G.J.; **Benson, R.S.P.**; Kenyon, D.; Lazzara, M.; Swinton, J.; Beck, S.; Hickinson, M.; Beusmans, J.M.; Lauffenberger, D.; de Graaf, D. (2006): Decreased internalisation of ErbB1 mutants in lung cancer is linked with a mechanism conferring sensitivity to gefitinib. *IEE Proceedings Syst. Biol.* 153(6), 457-466
- (13) Drake, P.J.M; Griffiths, G.J.; Shaw, L.; **Benson, R.S.P.**; Corfe, B.M. (2008): Application of High-Content Analysis to the study of Post-Translational modifications of the cytoskeleton. *Journal of proteome research* 8(1), 28-34.
- (14) Waby, J. S., Chirakkal, H., Yu, C., Griffiths, G. J., **Benson, R. S.**, Bingle, C. D., & Corfe, B. M. (2010). Sp1 acetylation is associated with loss of DNA binding at promoters associated with cell cycle arrest and cell death in a colon cell line. *Mol.Cancer* 9, 275.
- (15) Corfe, B. M., Kilner, J., Chowdry, J., **Benson, R. S.**, Griffiths, G. J., & Evans, C. A. (2013). Application of high content biology to yield quantitative spatial proteomic information on protein acetylations. *Methods Mol.Biol.* 981, 37-45.
- (16) Yu KK, Taylor JT, Pathmanaban ON, Youshani AS, Beyit D, Dutko-Gwozdz J, **Benson R**, Griffiths G, Peers I, Cueppens P, Telfer BA, Williams KJ, McBain C, Kamaly-Asl ID, Bigger BW. (2018) High Content Screening of patient derived cell lines highlights the potential of non-standard chemotherapeutic agents for the treatment of glioblastoma. *PLoS One* 2;13(3).

* = Corresponding author

Published Conference Abstracts

- (1) **Benson, R.S.P.**; Watson, A.J.M. (1996): A program for the automated analysis of acid-base transport. *J. Physiol.* 495, 57P.
- (2) **Benson, R.S.P.**; Watson, A.J.M. (1996): Bcl-2 over-expression in CEM cells undergoing apoptosis blocks chromatin condensation and cellular fragmentation without preventing cell shrinkage or intracellular acidification. *Biochem. Soc. Trans.* 24(4), 603.

- (3) Elliott, A.C; Van De Put, F.H.M.M; **Benson, R.S.P.**; Speake, T (1998): Calcium measurements within intracellular organelles using trapped fluorescent dyes. *J of Gen. Physiol.* 112(1)39a
- (4) **Benson, R.S.P.** (1999) A computer program to automate the data analysis of radioimmune assays. *J. Physiol.* 517, 3P
- (5) Sidhu, S; **Benson, R.S.P.**; Warhurst, G.; Case R.M.; Thompson, D.G. (1999) Further studies on the interaction of saturated fatty acids with enteroendocrine cell lines STC-1 and GLUTag *J. Physiol.* 517, 91-92P
- (6) S. Kazmi, T. J. Donohoe, R.M. Case, D.G. Thompson, and **Benson, R.S.P.** (2003): The Effect of Modified Fatty Acids on CCK secretion in STC-1 Cells. *J. Physiol. (Newcastle)*

Other Conference Abstracts

- (1) Chen, Q; **Benson, R.S.P.**; Heer, S; Watson, A.J.M; Dive, C (1997): Examination of mitochondrial membrane potential (Ψ_m) and apoptosis by flow cytometry. Royal Microscopical Society
- (2) **Benson, R.S.P.**; Dive, C.; Watson, A.J.M. (1997): Changes in intracellular pH during apoptosis - cause or consequence? Programmed Cell Death, Cold Spring Harbor, New York
- (3) Gunby, R; Brunet, C; **Benson, R.S.P.**; Hickman, J.A.; Watson, A.J.M.; Brady, G. (1997) Defining the commitment to dexamethasone induced apoptosis Programmed Cell Death, Cold Spring Harbor, New York
- (4) Sidhu, S.S.; Case, R.M.; Thompson, D.G.; Warhurst, G.; **Benson R.S.P.** (2000): Fatty acid-induced CCK secretion in enteroendocrine cell lines involves a defined signal transduction pathway. Keystone conference January 2000
- (5) Kazmi, S.; Donohoe, T.J.; Case, R.M.; Thompson, D.G.; Warhurst, G.; **Benson, R.S.P.** (2000) Chemical modifications of medium-chain fatty acids and their ability to induce CCK release in STC-1 cells. Keystone conference January 2000
- (6) **Benson, R.S.P.** (2001): Fatty acid transport and signalling in enteroendocrine cells. Invited guest of the Rank Prize Symposium on nutrient transport.
- (7) **Benson, R.S.P.** (2002): Climbing LADDERS. Wellcome Showcase Awardee Meeting.
- (8) **Benson, R.S.P.** (2003): 2nd Generation LADDERS: Wellcome Showcase Awardee Meeting
- (9) **Benson, R.S.P.**; Embleton, M.J.; Elliott A.C. (2003): The use of "LADDERS" to detect protein changes in living cells in live time. Proteomics: Technologies and Applications, Keystone Colorado
- (10) **Benson, R.S.P.** (2003): The Blind Watch wearers. A critique of scientific atheism. Invited guest speaker for the Association of Christians in Higher Education Meeting.
- (11) James, A.; **Benson, R.**; Beusmans, J.; Scherrer, D.; Swinton, J. (2006): Ranking ErbB inhibitors strategies in a "virtual" panel of cell lines. Gordon conference: Macromolecular organisation and cell function.
- (12) **Benson, R.S.P.**; Swinton, J.; Paterson, D.S. (2006): A data layout tool that associates the independent parameters of an experiment with the high content data generated from plate reading machines. CHI High Content Biology San Francisco
- (13) Griffiths G; Stringer, S; Gorski, B; Gilmore, A; Cooper, P; Milward M; Wright K; Johnson E; **Benson, R.** (2010): The application of High Content Analysis to modern cell biology challenges. ELRIG Drug Discovery Meeting Coventry.

(14) **Benson R.**; Griffiths G.; Dutkogwozdz, J. Yu K.; Pathmanaban O.; Kamaly I.; Bigger, B. (2014) The personalisation of chemotherapy using high content screening ELRIG Drug Discovery Meeting, Manchester

(15) Trim S. A.; **Benson, R.**; Griffiths G. (2022): Examining the synergistic effect of venoms to enhance chemotherapeutics and irradiation using high content cell imaging. SLAS EU, Dublin Ireland.

Referees

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