Curriculum Vitae

Nigel Yarlett, PhD

Address: Department of Chemistry & Physical Sciences, and Haskins Laboratories, Pace University, 1 Pace Plaza, New York, NY 10038, USA
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Current Position: Professor of Chemistry & Physical Sciences/Director of Haskins Labs

Education: 1976-1979 BSc (Hons) Cardiff University, Wales, U.K. Microbiology
1979-1982 PhD Cardiff Univ./Hannah Research Inst., Scotland. Biochemistry

Professional Experience:
1982-1984 Postdoctoral Associate, Biochemical Cytology, Rockefeller University, New York, NY
1984-1986 Fellowship, Microbiology Dept., Cardiff University, Cardiff, Wales, U.K.
1986 Visiting Fellow Inst. Animal Physiology, Cambridge, UK
1986-2006 Research Associate, Haskins Laboratories, Pace University, New York, NY
1986-1994 Assistant Professor, Pace University, New York, NY
1994-1998 Associate Professor of Chemistry & Physical Services, Pace University, New York, NY
1998-present Professor of Chemistry & Physical Services, Pace University, New York, NY
2005-2013 Chair of Chemistry & Physical Sciences, Pace University, New York.
2006-present Director of Haskins Laboratories, Pace Univ., New York.

Description of Duties:
Supervise a faculty and staff of 8. Responsible for the day-to-day operation of the Haskins Laboratories; Including: Obtaining extramural funding to support research projects, Compliance with State, Federal and City regulations for the Assure of Chemical, Biological and Radioactive materials.
Courses taught: Biochemistry, Advanced Biochemistry. Developed a MS program in Biochemistry. Mentor graduate student research projects.

Awards:
Lady Glanely Scholarship, 1977-1979
Seymour H. Hutner Prize in Protozoology, 1995
Fellow of the Society of Fellows of Pace University, 1996
US Patent Award most innovative chemotherapeutic development. 1997
Keenan Award for teaching excellence, 2003
DNDi project of the year 2011 for development of oxaboroles as a therapeutic strategy for HAT
Fellow of the Royal Society of Chemistry

Funding 2008-present:
Principal Investigator of the Bill and Melinda Gates Foundation ($198,423) 10/16/2014-10/31/2015
Co-Principal Investigator. Drugs for Neglected Diseases initiative ($841,323), 2/2008-1/2014
Principal Investigator. National Institutes of Health, NIAID ($333,502), 10/2010-9/2015

College of Undergraduate Research ($2,500) 9/2011-6/2012

Career highlights:

First description of biochemistry of hydrogenosomes in rumen protists - *Biochem J* **200**:365 (1983).
First measurement of oxygen in rumen fluid – *J App Bacteriol* **55**:143 (1983).
First biochemical description of hydrogenosomes from an anaerobic fungus species – *Biochem J* **236**:729 (1986).
Description of lowered oxygen affinity by aerobically metronidazole resistant *Trichomonas vaginals – Mol Biochem Parasitol* **19**:111 (1986).
Co-principal Investigator of the team that discovered the antitrypanosomal activity of DL-difluoromethylornithine – *Mol Biochem Parasitol* **27**:1 (1988).
Biochemical description of S-adenosylmethionine synthase from *Trypanosoma brucei – Biochim Biophys Acta* **1181**:68 (1993).
First biochemical description of the polyamine biosynthetic pathway of *Cryptosporidium parvum – Mol Biochem Parasitol* **88**:35 (1997).
First description of mitochondrial-like organelles in *Blastocystis hominis – Microbiology* **154**:2757 (2008).
Co-principal Investigator of the team that discovered the antitrypanosomal activity of a novel class of oxoborales – *Antimic Ag Chemother* **54**:4379 (2010).
Developed the first continuous culture system for Cryptosporidium parvum – submitted Nature Publication Group Scientific Reports 2014

Patents:

US patent 5,180,714 Adenosine compounds for the treatment of diseases caused by parasitic protozoa. May 1996.
US patent 2,503,173 Japanese patent 4-500888. Agents for the treatment of diseases caused by parasitic protozoa and neoplastic disease. Jan 1997.
US patent 5,721,216 Treatment of diseases caused by parasitic protozoa and fungal diseases by administration of 5'deoxy-5'-(substituted) ethylthioribose. March 1998.

Other Professional activities:

Associate Editor Microbiology, 1995 - 2004
Editorial Board of J. Eukaryotic Microbiology, 1995 - 2002
Treasurer Int. Soc. Protistologists, 2006 – 2012
Member New York Academy of Science, 2009-present
Member Royal Society of Chemistry, 2012-present
Member of the American Society of Biochemistry and Molecular Biology 2012-present

Selected peer-reviewed publications from over 100 (in chronological order):

Morada M, Weiss L, Gunther-Cummins, **Yarlett N**. (under review) Continuous culture of *Cryptosporidium parvum* using hollow fiber technology. *NPG Sci. Rep*.

Morada M, Pendyala L, Wu G, Merali S, **Yarlett N**. (2013) *Cryptosporidium parvum* induces an endoplasmic response in intestinal adenocarcinoma HCT-8 cell line. *J Biol Chem*. Aug 28

Wring S, Gaukel E, Nare B, Jacobs R, Beaudet B, Bowling T, Mercer L, Bacchi C, **Yarlett N**, Randolph R, Parham R, Rewerts C, Platner J, Don R. (2013) Pharmacokinetics and pharmacodynamics utilizing unbound target tissue exposure as part of a disposition-based rationale for lead optimization of benzoxaboroles in the treatment of Stage 2 Human African Trypanosomiasis. *Parasitol*. Sept 5: 1-15.

Bacchi C, Jacobs R, **Yarlett N**. (2013) New Developments in the Treatment of Late-Stage Human African Trypanosomiasis. In: Trypanosomatid Diseases Molecular Routes to Drug Discovery. T. Jager, O. Koch, L. Flohe (eds). *Drug Discovery in Infectious Diseases* Vol 4**,** Wiley-Blackwell:515-529.

Yarlett N, Morada M. (2012) Antiparasitic Drug Discovery for the Polyamine Pathway. In: Polyamine Drug Discovery. Patrick Woster & Robert Casero Jr. (eds). *RSC Drug Discovery Series* **No. 17**. Royal Society of Chemistry pub.

Jacobs RT, Plattner JJ, Nare B, Wring SA, Chen D, Freund Y, Gaukel1 EG, Orr MD, Perales JB, Jenks M, Noe RA, Sligar J, Zhang Y-K, Bacchi CJ, **Yarlett N**, Don R. (2011) Benzoxaboroles: a new class of potential drugs for human African trypanosomiasis. *Future Med. Chem.* **3**(10).

Mercer L, Bowling T, Perales J, Freeman J, Nguyen TM, Bacchi CJ, **Yarlett N**, Don R, Jacobs R, Nare B. (2011) 2,4-Diaminopyrimidines as potent inhibitors of *Trypanosoma brucei* and identification of molecular targets by a chemical proteomics approach. *Plos Neg Trop Dis.* **5**:e956

Perales JB, Freeman J, Bacchi CJ, Bowling T, Don R, Gaukel E, Mercer L, Moore III JA, Nare B, Nguyen TM, Noe RA, Randolph R, Rewarts C, Wring S, **Yarlett N**, Jacobs R. (2011) SAR of 2-amino and 2,4-diamino pyrimidines with in vivo efficacy against *Trypanosoma brucei*. *Bioorg Med Chem Letts*. **21**:2816-2819.

Morada M, Smid O, Hampl V, Sutak R, Lam B, Rappelli P, Dessi D, Fiori PL, Tachezy J, **Yarlett N**. (2011) Hydrogenosome-localization of arginine deiminase in *Trichomonas vaginalis*. *Mol Biochem Parasitol*. **176**:51-54.

Mayence A, Vanden Eynde JJ, Kaiser M, Brun R, **Yarlett N**, Huang TL. (2011) Bis(oxyphenylene) benzimidazoles: A novel class of anti-*Plasmodium falciparum* agents. *Bioorg Med Chem.* **19**:7493-7500.

Morada M, Manzur M, Lam B, Tan C, Tachezy J, Rappelli P, Dessi D, Fiori PL, **Yarlett N**. (2010) Arginine metabolism in *Trichomonas vaginalis* infected with *Mycolplasma hominis*. *Microbiology.* **156**:3734-3743.

Nare B, Wring S, Bacchi CJ, Beaudet B, Bowling T, Brun R, Chen D, Ding C, Freund Y, Gaukel E, Hussain A, Jarnagin K, Jenks M, Kaiser M, Mercer L, Mejia E, Noe A, Orr M, Parham R, Plattner J, Randolph R, Rattendi D, Rewerts C, Sligar J, **Yarlett N**, Don R, Jacobs R. (2010) Discovery of novel orally bioavailable oxaborole 6-carboxamides that demonstrate cure in a murine model of late stage central nervous system African trypanosomiasis. *Antimic Ag Chemother*. **54**:4379-4388.

Huang TL, Vanden Eynde JJ, Mayence A, Collins MS, Cushion MT, Rattendi D, Londono I, Mazumder L,Bacchi CJ, **Yarlett N**. (2009) Synthesis and SAR of alkanediamide-linked bisbenzamidines with anti-trypanosomal and anti-pneumocystis activity. *Bioorg Med Chem Letts*. **19**:5884-5886.

Bacchi CJ, Barker RH, Rodriguez A, Hirth B, Rattendi D, **Yarlett N**, Hendrick C, Sybertz E. (2009) Trypanocidal activity of 8-methyl-5'-{[(Z)-4-aminobut-2-enyl]-(methylamino)}adenosine (Genz-644131), anadenosylmethionine decarboxylase inhibitor. *Antimic Ag Chemother*. **53**:3269-3272.

Bacchi CJ, **Yarlett N**, Faciane E, Bi X, Rattendi D, Weiss, Woster P. (2009) Metabolism of an alkyl polyamine analog by a polyamine oxidase from the microsporidian *Encephalitozoon cuniculi*. *Antimic Ag Chemother.* **53:**2599-2604.

Barker RH, Liu H, Hirth B, Celatka C, Fitzpatrick R, etc (2009) Novel S-adenosylmethionine Decarboxylase inhibitors for the treatment of Human African Trypanosomiasis. *Antimic Ag Chemother*. **53**:2052-2058.

Lantsman Y, Tan KSW, Morada M, **Yarlett N**. (2008) Biochemical characterization of a mitochondrial-like organelle from *Blastocystis* sp. subtype 7. *Microbiology*. **154**:2757-2766.

Yarlett N, Tan KSW. (2007) Mitochondrial Remnant in *Blastocystis*. *Microb Monogr*. **9:**255-264.

Yarlett N, Wu G, Waters WR, Harp JA, Wannemuehler MJ, Morada M, Athanasopoulos D, Martinez MP, Upton SJ, Marton LJ, Frydman BJ. (2007) *Cryptosporidium parvum* spermidine/spermine *N1*-acetyltransferase exhibits different characteristics to the host enzyme. *Mol Biochemical Parasitol*. **152**:170-180.

Cook T, Roos D, Morada M, Zhu G, Keithly JS, Feagin JE, Wu, G, **Yarlett N**. (2007) Divergent polyamine metabolism in the apicomplexa. *Microbiology*. **153**:1123-1130.

Yarlett N, Waters WR, Harp JA, Wannemuehler MJ, Morada M, Bellcastro J, Upton SJ, Marton LJ,

Frydman BJ. (2007) Activities of DL-α-difluoromethylarginine and polyamine analogues against *Cryptosporidium parvum* infection in a T-cell receptor alpha deficient mouse model. *Antimic. Ag. Chemother.* **51**:1234-1239.

Yarlett N and Hackstein JH. (2005) Hydrogenosomes: One organelle, multiple origins. BioSciences. **55**:657-68.

Hackstein JH and Yarlett N. (2005) Hydrogenosomes and symbiosis. *Progress in Molecular and Subcellular Biology*. J. Overmann (Ed.). Springer-Verlag, Berlin, Germany: 117-142.

Recent conferences:

06/06 Session Chair and speaker ISoP/IWOP joint meeting, Lisbon, Portugal
07/06 Session Chair and speaker at Polyamines in Parasites Conf., Portland, OR
07/07 Invited Polyamine Gordon Conference, Waterville Valley, New Hampshire
05/08 Co-Organizer of the International Conference on Anaerobic Protists, Taipei, Taiwan.
07/08 Session Chair and speaker at Polyamines in Parasites Conf., Detroit, MI
03/09 Keystone Symposium, Breckenridge, CO
06/09 Polyamine Gordon Conference, Waterville Valley, New Hampshire
07/10 Invited speaker Int Soc Protistol meeting Univ Kent, UK
08/10 Invited speaker at Polyamines in Parasites Conf., Phalaborwa, S. Africa
05/11 American Soc Microbiol., New Orleans, LA.
06/13 Polyamine Gordon Conference, Waterville Valley, New Hampshire
10/14 Grand Challenges Annual Meeting, Seattle, WA (Invited by The Gates Foundation)