

JOHN CAIRNEY, PHD

Molecular Biologist/Microbiologist
1510 High Haven Court
Atlanta, GA 30329

Tel: (404) 451 1883 (cell)
(404) 320 7951 (home)
e-mail: john.cairney2611@gmail.com

Permanent US Resident (Green Card Holder, A# 029-089-278)
Born : Dumfries, Scotland, UK, 29th March, 1959

EDUCATION:

B.Sc. (Honours), University of Glasgow, Scotland, 1982
Ph.D., University of Dundee, Scotland, 1986

PROFESSIONAL AND ACADEMIC APPOINTMENTS:

2010 - P President and Scientific Director , NanoBiotechnologies
2007 - P Associate, Aqua Resources
2003-2009 Associate Professor, School of Biology, Georgia Tech
1999-2003 Associate Professor, Institute of Paper Science and Technology
1996-2003 Adjunct Faculty, School of Biology, Georgia Tech
1994-1999 Assistant Professor, Institute of Paper Science and Technology
1991-1994 Assistant Professor, Dept. Forest Science, Texas A&M Univ.
1990 -1991 Research Associate, Dept. Forest Science, Texas A&M Univ.
1989 -1990 Postdoctoral Fellow, Dept. Biological Sciences, Columbia University, NY
1988-1989 Postdoctoral Fellow, Med. Res. Council Human Genetics Unit, Western
 General Hospital, Edinburgh, Scotland
1986-1988 EMBO Postdoctoral Fellow, Max Planck Institute for Molecular Genetics,
 Berlin, Germany
1982-1986 Graduate Res. Ass., Dept. of Biochemistry, University of Dundee, Scotland

ACADEMIC AND RESEARCH ACCOMPLISHMENTS

Mentored (major professor) 5 PhD students, 13 MS students, and 10 post-doctoral Fellows.
Obtained over \$5.5 Million in External Funding over course of career (funds from Federal Sources [NSF,USDA, DOE], State Sources [Georgia Consortium] and Industrial Sources).
First to demonstrate Mg(OH)₂ nanoplatelets as antimicrobial agent (for Aqua Resources)

CURRENT FIELDS OF INTEREST:

Molecular Microbiology of Antimicrobial Properties of Nanoparticles
Molecular Biology of the Production of Biomass for Bioenergy and Biochemicals
Molecular Biology of the Production and Hydrolysis of Cellulose and Lignocellulose for Bioenergy and Biochemicals
Molecular Biology of Embryogenesis in Loblolly Pine (*Pinus taeda* L.)

SAMPLE PUBLICATIONS

Published over 50 peer-reviewed research papers, 20 conference proceedings and 60 Industrial Reports. Hold 2 patents, 1 pending patent, 5 invention disclosures lodged.

1. Dong C, **Cairney J**, Sun Q, Maddan OL, He G, Deng Y. 2010. Investigation of Mg(OH)₂ nanoparticles as an antibacterial agent. **J Nanopart Res** (online) DOI 10.1007/s11051-009-9769-9
2. Oh, T., R. M. Wartell, **J. Cairney**, G. S. Pullman. 2008. Evidence for stage-specific modulation of specific microRNAs (miRNA) and miRNA processing components in female gametophyte tissues during embryogenesis of loblolly pine (*Pinus taeda* L.). **New Phytologist**. 179:67 - 80 (OnlineEarly; doi:10.1111/j.1469-8137.2008.02448.x)
3. **Cairney J**, Pullman GS. 2007. The cellular and molecular biology of conifer embryogenesis. (Invited **Tansley Review**) **New Phytol.** 176:511-36.
4. **Cairney J**, Zheng L, Cowels A, Hsiao J, Zismann V, Liu J, Ouyang S, Thibaud-Nissen F, Hamilton J, Childs K, Pullman GS, Zhang Y, Oh T, Buell CR. 2006. Expressed Sequence Tags from loblolly pine embryos reveal similarities with angiosperm Embryogenesis. **Plant Mol. Biol.** 62:485-501 (DOI: 10.1007/s11103-006-9035-9) ([View PDF](#))
5. Ragauskas AJ.; Williams CK.; Davison BH.; Britovsek G; **Cairney J**; Eckert CA.; Frederick W J. Jr.; Hallett JP.; Leak DJ.; Liotta CL.; Mielenz JR.; Murphy R; Templer R; Tschaplinski T. 2006. The Path Forward for Biofuels and Biomaterials. **Science** 311(5760), 484-489. ([View PDF](#)).
6. Lee SH, Stubbs DD, **Cairney J**,. Hunt WD. 2005. Rapid detection of bacterial spores using a Quartz Crystal Microbalance (QCM) immunoassay. **IEEE Sensors Journal**. Special Issue on Sensors for the Prevention of Terrorist Acts. 5: 737-743
7. Ciavatta VT, Egertsdotter U, Clapham D, von Arnold S, **Cairney J**. 2002. A promoter from the loblolly pine PtNIP1:1 gene directs expression in an early-embryogenesis and suspensor-specific fashion. **Planta** 215: 694-698 (DOI 10.1007/s00425-002-0822-5) (<http://link.springer-ny.com/link/service/journals/00425/contents/02/00822/>)
8. Ciavatta VT, Morillon R, Pullman GS, Chrispeels M, **Cairney J**. 2001. An aquaglyceroporin is abundantly expressed early in the development of the suspensor and the embryo proper of loblolly pine (*Pinus taeda* L.). **Plant Physiol.** 127: 1556-1567 (<http://www.plantphysiol.org/cgi/content/full/127/4/1556>)
9. Strauss S, Boerjan W, **Cairney J**, Malcolm Campbell M, Dean J, Ellis D, Jouanin L, Sundberg B. 1999. Forest biotechnology makes its position known. **Nature/Biotechnology** 17 (12) 1145. (<http://www.nature.com/cgi-bin/doifinder.pl?URL=/doifinder/10.1038/70652>)
10. Higgins CF, **Cairney J**, Stirling DA, Sutherland L, Booth IR. 1987. Osmotic regulation of gene expression: ionic strength as an intracellular signal? **Trends Biochem. Sci.** 12: 339-344.