
BIOGRAPHICAL SKETCH

NAME Robert J. Cotter	POSITION TITLE Professor of Pharmacology and Molecular Sciences		
EDUCATION/TRAINING (<i>Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.</i>)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
College of Holy Cross, Worcester	BS	1965	Chemistry
Johns Hopkins University	MS	1971	Physical Chemistry
Johns Hopkins University	PhD	1972	Physical Chemistry

RESEARCH AND PROFESSIONAL EXPERIENCE:

1981: Assistant Professor of Pharmacology, Johns Hopkins University
1986: Associate Professor of Pharmacology, Johns Hopkins University
1987-present: Director: Middle Atlantic Mass Spectrometry Laboratory
1992-present: Professor of Pharmacology and Molecular Sciences, Johns Hopkins University
1994-present: Professor of Biophysics and Biophysical Chemistry, Johns Hopkins University
2000-present: Principal Professional Staff, Johns Hopkins Applied Physics Laboratory

SELECTED PUBLICATIONS:

Books Published:

1. *Time-of-Flight Mass Spectrometry: Instrumentation and Applications in Biological Research*, Robert J. Cotter, American Chemical Society, Washington DC (1997).

Publications in Scientific Journals, Reviews and Book Chapters

1. Moyer, S. C. and Cotter, R.J., *Atmospheric Pressure MALDI*, **Anal. Chem.** **74** (2002) 468A–476A.
2. Prieto, M.C.; Kovtoun, V.V. and Cotter, R.J., *Miniaturized Linear Time-of-Flight Mass Spectrometer with Pulsed Extraction*. **J. Mass Spectrom.** **37** (2002) 1158–1162.
3. Cotter, R.J.; English, R.D.; Warscheid, B.; Hardy, A.; and Gardner, B.D., *Miniaturized Time-of-Flight Mass Spectrometers for Bioagent Detection and Identification*, **J. Mass Spectrom. Soc. Jpn.** **51** (2003) 36–41.
4. Von Seggern, C.E., Moyer, S.C. and Cotter, R.J., *Liquid Infrared Atmospheric Pressure MALDI/Ion Trap Mass Spectrometry of Sialylated Oligosaccharides*, **Anal. Chem** **75** (2003) 3212–3218.
5. Davies, A.; Kalb, S.; Liang, B.; Aldrich, C.J.; Lemonnier, F.A.; Jiang, H.; Cotter, R.J. and Soloski, M.J., *A Peptide from Heat Shock Protein 60 is the Dominant Peptide Bound to Qa 1 in the Absence of the MHC Class 1a Leader Sequence Peptide Qdm*, **J. Immunol.** **170** (2003) 5027–5033.
6. English, R.D.; Warscheid, B.; Fenselau, C. and Cotter, R.J., *Bacillus Spore Identification Using Proteolytic Mapping and a Miniaturized MALDI TOF Mass Spectrometer*, **Anal. Chem.** **75** (2003) 6886–6893.
7. Wang, D.; Kalb, S.R. and Cotter, R.J., *Improved Procedures for N-Terminal Sulfonation of Peptides for Matrix-Assisted Laser Desorption/Ionization Post-Source Decay Peptide Sequencing*, **Rapid Commun. Mass Spectrom.** **18** (2004) 96–102.
8. Thompson, P.; Wang, D.; Wang, L.; Fulco, M.; Pediconi, N.; Zhang, D.; An W.; Ge Q.; Roeder, R.G.; Wong, J.; Levrero, M.; Sartorelli, V.; Cotter, R.J. and Cole, P.A., *Regulation of the p300 HAT Domain via a Novel Activation Loop*. **Nature: Struct. Mol. Biol.** **11** (2004) 308-15.
9. Cotter, R.J.; Gardner, B.; Ilchenko, S. and English, R.D., *Tandem Time-of-Flight Mass Spectrometry with a Curved Field Reflectron*, **Anal. Chem.** **76** (2004) 1976-1981.
10. Stanley, B.A.; Gundry, R.L.; Cotter, R.J.; Van Eyk, J.E., *Heart Disease, Clinical Proteomics and Mass Spectrometry, Disease Markers* **20** (2004) 167-178.

11. Casaday, R.J.; Bailey, J.; Kalb, S.R.; Brignole, E.; Loveland, A.; Cotter, R.J.; Gibson, W., *Assembly Protein Precursor (pUL80.5 homolog) of Simian Cytomegalovirus is Phosphorylated at a Glycogen Synthase Kinase 3 Site and its Downstream "Priming": Site: Phosphorylation Affects Interactions of Protein with itself and with Major Capsid Protein*, **J. Virology** **78** (2004) 13501-13511.
 12. Wang, D., Xu, W., Neckers, L., Cotter, R.J. *A Novel Strategy for Determining Protein Ubiquitination by Mass Spectrometry*. **Mol. Cell. Proteomics** **10** (2004) S142
 13. Wang, D.; Thompson, P.; Cole, P.A. and Cotter, R.J., *Structural Analysis of a Highly Acetylated Protein Using a Curved-Field Reflectron Mass Spectrometer*, **Proteomics** **5** (2005) 2288-96.
 14. Wang, D.; Cotter, R.J., *Approach for Determining Protein Ubiquitination Sites by MALDI-TOF Mass Spectrometry*, **Anal. Chem.** **77** (2005) 1458-66.
 15. Song, Z.; Marzilli, L.; Greenlee, B.M.; Chen, E.S.; Silver, R.F.; Askin, F.B.; Teirstein, A.S.; Zhang, Y.; Cotter, R.J.; Moller, D.R., *Mycobacterial Catalase Peroxidase is a Tissue Antigen and Target of the Adaptive Immune Response in Systemic Sarcoidosis*, **J. Exp. Medicine** **201** (2005) 755-67.
 16. Wooden, S.L.; Kalb, S.R.; Cotter, R.J.; Soloski, M.J., *HLA-E Binds a Peptide Derived from the ABC Transporter MRP7And Inhibits Natural Killer Cell-Mediated Lysis*, **J. Immunol.** **175** (2005) 1383-87.
 17. Wang, D., Xu, W., Patterson, C., McGrath, S.C., Neckers, L., Cotter, R.J., *Direct Identification of Ubiquitination Sites on the Ubiquitin-CHIP Conjugate Using MALDI Mass Spectrometry* **J. Proteome Res.** **4** (2005) 1554-1560.
 18. Gundry, R. L.; Edward, R.; Kole, T. P.; Sutton, C.; Cotter, R.J., *Disposable hydrophobic surface on MALDI targets for enhancing MS and MS/MS data of peptides* **Anal Chem** **77** (2005) 6609-17.
 19. Stead, C.; Tran, A.; Ferguson, D., Jr.; McGrath, S.; Cotter, R.J.; Trent, S., *A novel 3-deoxy-D-manno-octulosonic acid (Kdo) hydrolase that removes the outer Kdo sugar of Helicobacter pylori lipopolysaccharide*, **J Bacteriol** **187** (2005) 3374-83.
 20. Irani, D.N.; Anderson, C.; Gundry, R.; Cotter, R.; Moore, S.; Kerr, D.A.; McArthur, J.C.; Sacktor, N.; Pardo, C.A.; Jones, M.; Calabresi, P.A.; Nath, A., *Cleavage of Cystatin C in the Cerebrospinal Fluid of Patients with Multiple Sclerosis*, **Ann. Neurol.** **59** (2006) 237-247.
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 22. Wang D, Kalume D, Pickart C, Pandey A, Cotter R.J., *Identification of protein ubiquitylation by electrospray ionization tandem mass spectrometric analysis of sulfonated tryptic peptides*, **Anal. Chem.** **78** (2006) 3681-7.
 23. Tran AX, Whittimore JD, Wyrick PB, McGrath SC, Cotter RJ, Trent MS. *The lipid A 1-phosphatase of Helicobacter pylori is required for resistance to the antimicrobial peptide polymyxin*, **J. Bacteriol.** **188** (2006) 4531-41.
 24. Wang, D.; Kalume, D.; Pickart, C.; Pandey, A.; Cotter, R. J. *Identification of Protein Ubiquitylation by Electrospray Ionization Tandem Mass Spectrometric Analysis of Sulfonated Tryptic Peptides* **Anal Chem** **11** (2006) 3681-3687.
 25. Wang, X.; Ribeiro, A. A.; Guan, Z.; McGrath, S. C.; Cotter, R. J.; Raetz, C. R., *Structure and Biosynthesis of Free Lipid A Molecules That Replace Lipopolysaccharide in Francisella tularensis subsp. novicida* **Biochemistry** **45** (2006) 14427-40.
 26. Montminy, S. W.; Khan, N.; McGrath, S.; Walkowicz, M. J.; Sharp, F.; Conlon, J. E.; Fukase, K.; Kusumoto, S.; Sweet, C.; Miyake, K.; Akira, S.; Cotter, R. J.; Goguen, J. D.; Lien, E., *Virulence factors of Yersinia pestis are overcome by a strong lipopolysaccharide response* **Nat Immunol** **7** (2006) 1066-73.
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 28. Cotter, R. J.; Griffith, W.; Jelinek, C., *Tandem time-of-flight (TOF/TOF) mass spectrometry and the curved-field reflectron* **J Chromatogr B Analyt Technol Biomed Life Sci** **855** (2007) 2-13.
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 31. Aggarwal, S.; Brennen, W. N.; Kole, T. P; Schneider, E.; Topaloglu, O; Yates, M.; Cotter, R. J.; Denmeade, S. R. *Fibroblast activation protein peptide substrates identified from human collagen I derived gelatin cleavage sites* **Biochemistry** **47** (2008) 1076-86.
 32. Mathivanan, S.; et al *Human Proteinpedia enables sharing of human protein data* **Nat Biotechnol** **26** (2008) 164-7.
 33. Evans-Nguyen, K.M.; Tao, S.C.; Zhu, H.; Cotter, R.J., *Protein arrays on patterned porous gold substrates interrogated with mass spectrometry: detection of peptides in plasma* **Anal Chem** **80** (2008) 1448-58.
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