

## **Geoffrey A. Mueller, Ph.D.**

### *Curriculum Vitae*

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### **PROFESSIONAL:**

National Institute of Environmental Health Sciences, National Institutes of Health.

2020-Present Director, NMR Research Core Facility

2012- 2020 Associate Scientist

2001- 2012. Staff Scientist

### **PROFESSIONAL AWARDS:**

- NIEHS Division of Intramural Research, Outstanding Staff Scientist, 2011
- NIEHS Division of Intramural Research, Paper of the Year, 2011 (reference #38 below)
- One of 10 papers selected from NIEHS- DIR publications in 2013 as Papers of the Year (reference #50 below) First author and Corresponding author
- One of 12 papers selected from NIEHS-DIR publications in 2015 as Papers of the Year (reference #58 below) First author
- NIEHS Cross-divisional Merit Award, for the development of NIEHS's first 3D printing symposium. 2016.
- NIEHS Cross-divisional Merit Award, for development of the Big Picture, Small Talk seminar series, creating opportunities for staff to learn about the Institute's work. 2016

### **PROFESSIONAL ORGANIZATIONS:**

World Health Organization / International Union of Immunological Societies Allergen

Nomenclature Subcommittee: Assigns names to new allergens and maintains a database of known allergens. 2016-present

### **PROFESSIONAL TRAINING:**

NIEHS Leadership Development Program, 2013.

### **EDUCATION:**

1998-2001 Postdoctoral Fellow, University of Toronto / Hospital for Sick Children

Lewis E. Kay and Julie D. Forman-Kay

1993-1998 Ph.D. University of Virginia. Biophysics

Advisors: Gordon S. Rule and David C. Benjamin

1989-1993 B.S. College of William and Mary. Major: Physics, Minor: Mathematics

Graduated *Magna Cum Laude* with High Honors

*Phi Beta Kappa, Sigma Pi Sigma* (Physics Honor Society)

### **PUBLICATIONS (85 peer-reviewed) and PRESENTATIONS (32 of note):**

<https://www.ncbi.nlm.nih.gov/myncbi/geoff.mueller.1/bibliography/public/>

\* *corresponding author*, † *equal contribution*

85. Rob C. Aalberse, **Geoffrey A. Mueller**, Ninotska I.L. Derksen, Joost A. Aalberse, Lori L. Edwards, Anna Pomés, Theo Rispens, Peter Briza. Identification of the amino-terminal fragment of Ara h 1 as a major target of the IgE-binding activity in the basic peanut protein fraction. *Clinical and Experimental Allergy*, Accepted 12/2/19.

84. Aurora Cabrera, Thomas A. Randall, Ryenne N. Ogburn, Betelihem Mebrahtu, Julia H.R. Johnson, Alexander C.Y. Foo, Michael C. Fitzgerald, **Geoffrey A. Mueller\***. Are allergens more abundant and/or more stable than other proteins in pollens and dust? (2019) *Allergy*. 00:1-3.

83. Alexander C.Y. Foo, Peter M. Thompson, Lalith Perera, Simrat Arora, Eugene F. DeRose, Jason Williams, and **Geoffrey A. Mueller\***. Influence of Hydrophobic Ligand Binding on the Structure, Stability, and Allergenicity of the Major Cockroach Allergen Bla g 1. (2019) *Scientific Reports* 9(1):18294

82. Sanny K Chan, Anna Pomès, Christiane Hilger, Janet M. Davies, **Geoffrey Mueller**, Annette Kuehn, Andreas L. Lopata, Gabriele Gadermaier, Marianne van Hage, Monika Raulf and Richard E Goodman. Keeping Allergen Names Clear and Defined. (2019) *Frontiers in Immunology*. 10:2600

81. J Glesner, AB Kapingidza, M Godzwon, LR Offermann, **GA Mueller**, EF DeRose, P Wright, CM Richardson, JA Woodfolk, LD Vailes, S Wünschmann, RE London, MD Chapman, M Ohlin, M Chruszcz, A Pomés. A human IgE antibody binding site on Der p 2 for the design of recombinant allergen for immunotherapy. (2019) *J. Immunology*. 203(9):2545-2556.

80. Wai Tuck Soh, Lorenz Aglas, **Geoffrey Mueller**, Sara Huber, Stefanie Gilles, Tamara Scheidt, Peter Thompson, Peter Briza, Robert Londdon, Claudia Traidl-Hoffmann, Chiara Cabrele, Hans Brandstetter, Fatima Ferreira. Multiple roles of Bet v 1 ligands in allergen stabilization and modulation of endosomal protease activity. (2019) *Allergy*. 74(12):2382-2393.

79. **Geoffrey A. Mueller\***, Jungki Min, Alexander C. Foo, Anna Pomés, Lars C. Pedersen. Structural Analysis of Recent Allergen-Antibody Complexes and Future Directions. (2019) *Current Allergy and Asthma Reports*. 19:17.

78. Jim Aloor, Kathleen Azzam, John Guardiola, Kymberly Gowdy, Jennifer Madenspacher, Kristin Gabor, **Geoffrey Mueller**, Wan-Chi Lin, Julie Lowe, Artiom Gruzdev, Michael Henderson, David Draper, B. Merrick, and Michael Fessler. Leucine-Rich Repeats and Calponin Homology containing 4 regulates the innate immune response. (2019) *J. Biological Chemistry*. 294(6):1997-2008.

77. Percy Tumbale, Matthew J. Schellenberg, **Geoffrey A. Mueller**, Emma Fairweather, Mandy Watson, Jessica N. Little, Juno Krahn, Ian Waddell, Robert E. London, R. Scott Williams. Mechanism of APTX nicked DNA sensing and Pleiotropic Inactivation in Neurodegenerative Disease. (2018) *EMBO Journal*, 37: e98875.

76. Eugene F. DeRose, Thomas W. Kirby, **Geoffrey A. Mueller**, William A. Beard, Samuel H. Wilson, and Robert E. London. Transitions in DNA polymerase  $\beta$   $\mu$ s-ms dynamics related to substrate binding and catalysis. (2018) *Nucleic Acids Research*. doi:10.1093/nar/gky503.

75. Lorenz Aglas, Stephanie Gilles, Renate Bauer, Sara Huber, Galber R Araujo, **Geoffrey Mueller**, Sandra Scheiblhofer, Marie Amisi, Hieu-Hoa Dang, Peter Briza, Barbara Bohle, Jutta Horejs-Hoeck, Claudia Traidl-Hoffman, Fatima Ferreira. Context Matters: Th2 polarizaion resulting from pollen composition and not from protein-intrinsic allergenicity. (2018) *J. Allergy and Clin. Imm.* 142(3):984-987.

74. Anna Pomés, Janet M. Davies, Gabriele Gadermaier, Christiane Hilger, Thomas Holzhauser, Jonas Lidholm, Andreas Lopata, **Geoffrey A. Mueller**, Andreas Nandy, Christian Radauer, Sanny K. Chan, Uta Jappe, Jörg Kleine-Tebbe, Wayne R. Thomas, Martin D. Chapman, Marianne van Hage, Ronald van Ree, Stefan Vieths, Monika Raulf, Richard E. Goodman. WHO/IUIS Allergen Nomenclature: providing a common language. (2018) *Molecular Immunology*. S0161-5890(18)30054-3.

73. Thomas A. Randall, Jim Mullikin, NISC Comparative Sequencing Program, **Geoffrey A. Mueller\***. The draft genome assembly of *Dermatophagoides pteronyssinus* supports identification of novel allergen isoforms in *Dermatophagoides* species. (2018) *International Archives of Allergy and Immunology*. 175(3):136-146.

72. Matthew J. Schellenberg, Jenna Ariel Lieberman, Andrés Herrero-Ruiz, Jason G. Williams, Ana M. Muñoz-Cabello, **Geoffrey A. Mueller**, Robert E. London, Felipe Cortés-Ledesma, and R. Scott Williams. ZATT (ZNF451) SUMO Ligase Licenses Topoisomerase 2 DNA-Protein Crosslinks for Direct Resolution by TDP2. (2017) *Science*. 357(6358):1412-1416.

71. **Geoffrey A. Mueller\***. Contributions and Future Directions for Structural Biology in the Study of Allergens. (2017) *Int. Archives of Allergy and Immunology*. 174:57-66.

70. Xunhai Zheng, **Geoffrey A. Mueller**, Kyungmin Kim, Lalith Perera, Eugene F. DeRose, Robert E. London. Identification of drivers for the metamorphic transition of HIV-1 reverse transcriptase. (2017) *Biochemical Journal*. 474(19):3321-3338.

69. Thomas A. Randall, Robert E. London, Michael C. Fitzgerald, **Geoffrey A. Mueller\***. Proteases of *Dermatophagoides pteronyssinus*. (2017) *Int. J. of Molecular Sciences* 18(6):E1204.

68. Diane R. Gold, ... **Geoffrey A. Mueller** ..., Elizabeth C. Matsui. (30 Authors Total). NIAID, NIEHS, NHLBI, MCAN Workshop Report: The Indoor Environment and Childhood Asthma: Implications for Home Environmental Intervention in Asthma Prevention and Management. (2017) *J. Allergy. Clin. Imm.* 140(4):933-949.

67. Anna Pomés, **Geoffrey A. Mueller**, Thomas A. Randall, Martin D. Chapman, Karla Arruda. New Insights into Cockroach Allergens. (2017) *Curr. Allergy and Asthma Reports*. 17(4):25

66. Bret D. Wallace, Zacary Berman, **Geoffrey A. Mueller**, Yunfeng Lin, Timothy Chang, Sara N. Andres, Jessica L. Wojtaszek, Eugene F. DeRose, Denise C. Appel, Robert E. London, Shan Yan, R. Scott Williams. The APE2 Zf-GRF is a Structure Specific DNA-Binding Domain Facilitating 3'-5' Resection of DNA Damage Following Oxidative Stress. (2017) Proc. Nat. Academy of Sciences 114(2):304-309.
65. Ryenne N. Ogburn, Thomas A. Randall, Yingrong Xu, Julia H. Roberts, Betelihem Mebrahtu, Jaret M. Karnuta, S. Dean Rider, Grace E. Kissling, Robert E. London, Anna Pomés, Larry Arlian, Michael C. Fitzgerald, **Geoffrey A. Mueller\***. Are dust mite allergens more abundant and/or more stable than other *Dermatophagoides pteronyssinus* proteins? (2017) J. Allergy and Clin. Imm.139(3) 1030-1032.
64. **Geoffrey A. Mueller\***, Eugene F. DeRose, Peter M. Thompson, Thomas O'Connell, Robert E. London. A metabolomic, geographic, and seasonal analysis on the contribution of pollen-derived adenosine to allergic sensitization. (2016) Metabolomics, 12(12): 1-10.
63. Katina L. Johnson, Jason G. Williams, Soheila J. Maleki, Barry K. Hurlburt, Robert E. London, **Geoffrey A. Mueller\***. Enhanced approaches for identifying Amadori products: application to peanut allergens. (2016) J. Agricultural and Food Research. 64(6):1406-13.
62. Xunhai Zheng, Lars C. Pedersen, Scott Gabel, **Geoffrey A. Mueller**, Eugene F. DeRose, Robert E. London. Unfolding the HIV-1 reverse transcriptase Ribonuclease H domain – how to lose a tug-of-war. (2016) Nucleic Acids Research. 44(4):1776-1788.
61. **Geoffrey A. Mueller\***, Thomas A. Randall, Jill Glesner, Lars C. Pedersen, Lalith Perera, Lori L. Edwards, Martin D. Chapman, Robert E. London, and Anna Pomés. Serological, genomic, and structural analyses of the major mite allergen Der p 23. (2016) Clinical and Experimental Allergy, 46(2):365-76.
60. Anna Pomés, Maksymilian Chruszcz, Alla Gustchina, Wladek Minor, **Geoffrey A. Mueller**, Lars C. Pedersen, Alexander Wlodawer, Martin D. Chapman. 100 Years Later: Celebrating the Contributions of X-ray Crystallography to Allergy and Clinical Immunology. (2015) J. Allergy and Clin. Imm.136(1):29-37.
59. Xunhai Zheng, Lalith Perera, **Geoffrey A. Mueller**, Eugene F. DeRose, Robert E. London. Asymmetric conformational maturation of HIV-1 reverse transcriptase. (2015) eLife. (4): e06359
58. **Geoffrey A. Mueller<sup>†</sup>**, Lars C. Pedersen<sup>†</sup>, Jill Glesner, Lori L. Edwards, Josefina Zakzuk, Robert E. London, Luisa Karla Arruda, Martin D. Chapman, Luis Caraballo, Anna Pomés. Analysis of GST allergen cross-reactivity in a North American population: relevance for molecular diagnosis. (2015) J. Allergy and Clin. Imm. 136(5):1369-1377.
57. Scott A. Gabel, Cassandra Smith, Matthew J. Cuneo, **Geoffrey A. Mueller**, Thomas W. Kirby, Eugene F. DeRose, Juno M. Krahn, and Robert E. London. Characterization of the redox transition of the XRCC1 N-terminal domain. (2014) Structure. 22(12):1754-63.

56. Debajyoti Ghosh, **Geoffrey A. Mueller**, Gabriele Schramm, Lori L. Edwards, Arnd Petersen, Robert E. London, Helmut Haas, Swati Gupta-Bhattacharya. Primary identification, biochemical characterization, and immunologic properties of the allergenic pollen cyclophilin Cat r 1. (2014) *Journal of Biological Chemistry*. 289(31):21374-85.
55. **Geoffrey A. Mueller\***, John A. Ankney, Jill Glesner, Taruna Khurana, Lori L. Edwards, Lars C. Pedersen, Lalith Perera, Jay E. Slater, Anna Pomés, Robert E. London. Characterization of an anti-Bla g 1 scFv: Epitope mapping and cross-reactivity. (2014) *Molecular Immunology*. 59:200-207.
54. **Geoffrey A. Mueller\***, Soheila J. Maleki, Lars C. Pedersen. The molecular basis of peanut allergy. [Invited Review] (2014) *Current Allergy and Asthma Reports*. 14:429-438.
53. Xunhai Zheng, Lars C. Pedersen, Scott A. Gabel, **Geoffrey A. Mueller**, Matthew J. Cuneo Eugene F. DeRose, Juno M. Krahn, Robert E. London. Selective unfolding of one Ribonuclease H domain of HIV reverse transcriptase is linked to homodimer formation. (2014) *Nucleic Acids Research*. 42(8):5361-77.
52. Thomas A. Randall, Lalith Perera, Robert E. London, **Geoffrey A. Mueller\***. Genomic, RNA-seq, and molecular modeling evidence suggests that the Major Allergen domain in Insects evolved from a homodimeric origin. (2013) *Genome Biology and Evolution*. 5: 2344-2358.
51. **Geoffrey A. Mueller\*†**, Soheila J. Maleki†, Katina Johnson, Barry K. Hurlburt, Hsiaopo Cheng, Sanbao Ruan, Jacqueline B. Nesbit, Anna Pomés, Lori L. Edwards, Allison Schorzman, Leesa J. Deterding, HaJeung Park, Kenneth B. Tomer, Robert E. London, Jason G. Williams. Identification of Maillard reaction products on peanut allergens that influence binding to the receptor for advanced glycation end products. (2013) *Allergy*. 168:1546-1554.
50. **Geoffrey A. Mueller\*†**, Lars C. Pedersen†, Fred B. Lih, Jill Glesner, Andrea F. Moon, Martin D. Chapman, Kenneth B. Tomer, Robert E. London, Anna Pomés. Novel structure of cockroach allergen Bla g 1 has implications for allergenicity and exposure assessment. (2013) *J. Allergy and Clinical Immunology*. 132:1420-6.
49. Xunhai Zheng, **Geoffrey A. Mueller**, Eugene F. DeRose and Robert E. London. Protein-mediated antagonism between HIV reverse transcriptase ligands nevirapine and Mg-ATP. (2013). *Biophysical Journal*. 104(12):2695.
48. Yanshun Liu, Xunhai Zheng, **Geoffrey A. Mueller**, Mack Sobhany, Eugene F. DeRose, Yingpei Zhang, Robert E. London and Lutz Birnbaumer. Crystal Structure of Calmodulin Binding Domain of Orai1 in Complex with Ca<sup>2+</sup>/Calmodulin Displays a Unique Binding Mode. (2012) *Journal of Biological Chemistry*. 287:43030-43041.
47. Xunhai Zheng, **Geoffrey A. Mueller**, Eugene F. DeRose, Robert E. London. Metal and Ligand binding to the HIV-RNase H active site are remotely monitored by Ile556. (2012) *Nucleic Acids Research*. 40(20):10543-10553.

46. Thomas W. Kirby, Eugene F. DeRose, Nisha A. Cavanaugh, William A. Beard, David D. Shock, **Geoffrey A. Mueller**, Samuel H. Wilson, and Robert E. London. Metal-Induced DNA Translocation Leads to DNA Polymerase Conformational Activation. (2012) *Nucleic Acids Research*. 40(7) 2974-83.
45. Paul A. Loeffler, Matthew J. Cuneo, **Geoffrey A. Mueller**, Eugene F. DeRose, Scott A. Gabel and Robert E. London. Structural studies of the PARP-1 BRCT domain. (2011) *BMC Structural Biology*.11:37.
44. **Geoffrey A. Mueller\***, Rajendrakumar A. Gosavi, Anna Pomés, Sabina Wünschmann, Andrea F. Moon, Robert E. London, Lars C. Pedersen. Ara h 2: crystal structure and IgE binding distinguish two sub-populations of peanut allergic patients by epitope diversity. (2011) *Allergy*. 66:878-885.
43. Jaime L Stark, Kelly A. Mercier, **Geoffrey A. Mueller**, Thomas B. Acton, Rong Xiao, Gaetano T. Montelione, Robert Powers. Solution structure and function of YndB, an AHSA1 protein from *Bacillus subtilis*. (2010) *Proteins: Structure, Function, and Bioinformatics*. 78(16): 3328-3340.
42. Glenn Butterfoss, Eugene F. DeRose, Scott A. Gabel, Lalith Perera, Joseph M. Krahn, **Geoffrey A. Mueller**, Xunhai Zheng, Robert E. London. Conformational Dependence of  $^{13}\text{C}$  shielding and coupling constants for methionine methyl groups. (2010) *Journal of Biomolecular NMR*. 48(1): 31-47.
41. **Geoffrey A. Mueller\***, Rajendrakumar A. Gosavi, Joseph M. Krahn, Lori L. Edwards, Matthew J. Cuneo, Jill Glesner, Anna Pomés, Martin D. Chapman, Robert E. London, Lars C. Pedersen. Der p 5 crystal structure provides insight into the group 5 dust mite allergens. (2010) *Journal of Biological Chemistry*. 285(33): 25394-25401.
40. Xunhai Zheng, **Geoffrey A. Mueller**, Matthew J. Cuneo, Eugene F. DeRose, Robert E. London. Homodimerization of the p51 subunit of HIV reverse transcriptase. (2010) *Biochemistry*. 49(13):2821-2833.
39. Andrea F. Moon, **Geoffrey A. Mueller**, Xuejun Zhong, Lars C. Pedersen. A synergistic approach to protein crystallography: Fixed-arm MBP crystallization and surface entropy reduction. (2010) *Protein Science*. 19(5):901-913.
38. **Geoffrey A. Mueller\***, Lori L. Edwards, Jim J. Aloor, Michael B. Fessler, Jill Glesner, Anna Pomés, Martin D. Chapman, Robert E. London, and Lars C. Pedersen. The Structure of the Dust Mite Allergen Der p 7 Reveals Similarities to Innate Immune Proteins. (2010) *J. Allergy and Clinical Immunology*. 125(4): 909-917.
37. **Geoffrey A. Mueller\***, Matthew T. Miller, Eugene F. DeRose, Mahua Ghosh, Robert E. London, and Traci M. Tanaka Hall\*. Solution structure of the Drosha double-stranded RNA-binding domain. (2010) *Silence*. 1:2.

36. Xunhai Zheng, **Geoffrey A. Mueller**, Eugene F. DeRose, Robert E. London. Conformational studies of [methyl-<sup>13</sup>C] methionine labeled HIV-1 reverse transcriptase by NMR spectroscopy. (2009) *Journal of Antiviral Research*. 84(3):205-14.
35. Kelly A. Mercier, **Geoffrey A. Mueller**, Thomas B. Acton, Rong Xiao, Gaetano T. Montelione, Robert Powers. <sup>1</sup>H, <sup>13</sup>C, and <sup>15</sup>N NMR assignments for the *Bacillus subtilis* yndB START domain. (2009) *Biomolecular NMR Assignments*. 3(2)191-4.
34. **Geoffrey A. Mueller\***. Analytical Solution to the Coupled Evolution of Multidimensional NMR Data. (2009) *J. Biomolecular NMR*. 44(1):13-23.
33. Robert E. London, Brett Wingad, **Geoffrey A. Mueller**. Dependence of amino acid sidechain <sup>13</sup>C shifts on dihedral angle; application to conformational analysis. (2008) *J. Am. Chem. Soc.*, 130 (33):11097–11105.
32. **Geoffrey A Mueller**<sup>†</sup>, Andrea F. Moon<sup>†</sup>, Eugene F. DeRose, Jody M. Havener, Dale A. Ramsden, Lars C. Pedersen, Robert E. London. A comparison of BRCT domains involved in nonhomologous end-joining: Introducing the solution structure of the BRCT domain of polymerase lambda. (2008) *DNA Repair* 7:1340-1351.
31. Eugene F. DeRose, Michael W. Clarkson, Steven A. Gilmore, Cristina J. Galban, Ashutosh Tripathy, Jody M. Havener, **Geoffrey A. Mueller**, Dale A. Ramsden, Robert E. London, and Andrew L. Lee. The solution structure of polymerase μ's BRCT domain reveals an element essential for its role in nonhomologous end joining. (2007) *Biochemistry*. 46(43):12100-12110.
30. Matthew J. DellaVecchia, W. Keither Merritt, Ye Peng, Thomas W. Kirby, Eugene F. DeRose, **Geoffrey A. Mueller**, Bennett Van Houten, and Robert E. London. NMR analysis of [methyl-<sup>13</sup>C]methionine UvrB from *Bacillus caldotenax* reveals UvrB-domain 4 heterodimer formation in solution. (2007) *J. Mol. Bio.* 373(2):282-295.
29. **Geoffrey A. Mueller**, Eugene F. DeRose, Thomas W. Kirby, and Robert E. London. NMR Assignment of Polymerase β labeled with <sup>2</sup>H, <sup>13</sup>C, and <sup>15</sup>N in complex with substrate DNA. *Biomolecular NMR Assignments*. (2007) 1:33-35.
28. Benjamin G. Bobay, **Geoffrey A. Mueller**, Richele J. Thompson, Alexey G. Murzin, Ronald A. Venters, Mark A. Strauch, and John Cavanagh. NMR structure of AbhN and comparison with AbrBN: First insights into the DNA-binding promiscuity and specificity of AbrB-like transition-state regulator proteins. (2006) *J. Biol. Chem.* 281:21399-21409.
27. Benjamin G. Bobay, Antonina Andreeva, **Geoffrey A. Mueller**, John Cavanagh, and Alexey G. Murzin. Revised structure of the AbrB N-terminal domain unifies a diverse superfamily of putative DNA-binding proteins. (2005) *FEBS Letters*. 579:5669-5674.
26. **Geoffrey A. Mueller**, Thomas W. Kirby, Eugene F. DeRose, Dawei Li, Roel M. Schaaper, and Robert E. London. NMR solution structure of the *E. coli* DNA Polymerase III θ subunit. (2005) *J. Bacteriology*. 187:7081-7089.

25. Eugene F. DeRose, Thomas W. Kirby, **Geoffrey A. Mueller**, Anna K. Chikova, Roel M. Schaaper and Robert E. London. Phage like it HOT: Solution Structure of the bacteriophage P1-encoded HOT protein: a homolog of the  $\theta$  subunit of *E. coli* DNA polymerase III Structure. (2004) Structure 12: 2221-2231.
24. **Geoffrey A. Mueller**, Koteppa Pari, Eugene F. DeRose, Thomas W. Kirby, and Robert E. London. Dynamics of the RNase H Domain of HIV-1 Reverse Transcriptase in the Presence of Magnesium and AMP. (2004) Biochemistry. 43(29) 9332-42.
23. Roopa Thapar, **Geoffrey A. Mueller**, William F. Marzluff. The N-terminal domain of the Drosophila histone mRNA binding protein, SLBP, is intrinsically unfolded with nascent helical structure. (2004) Biochemistry. 43(29) 9390-400.
22. Bidisha Bose-Basu, Eugene F. DeRose, Thomas W. Kirby, **Geoffrey A. Mueller**, William A. Beard, Samuel H. Wilson, and Robert E. London. Dynamic Characterization of a DNA Repair Enzyme: studies of [methyl-<sup>13</sup>C-methionine]-labeled DNA polymerase  $\beta$ . (2004) Biochemistry. 43(28) 8911-22.
21. Nigel I. Kirby, Eugene F. DeRose, Robert E. London, **Geoffrey A. Mueller\***. NvAssign: Protein NMR spectral assignment with NMRVIEW. (2004) Bioinformatics.20(7):1201-3.
20. Kirk C. Prutzman, Guanghua Gao, Vidhya V. Iyer, **Geoffrey A. Mueller**, Michael D. Schaller, and Sharon L. Campbell. The NMR Solution Structure of the Focal Adhesion Targeting (FAT) Domain of Focal Adhesion Kinase Reveals a Hinge Region that Modulates FAT-Domain Phosphorylation. (2004) Structure. 12(5):881-891.
19. Wayne H. Pitcher III, Eugene F. DeRose, **Geoffrey A. Mueller**, Elizabeth E. Howell, and Robert E. London. NMR studies of the interaction of a Type II Dihydrofolate Reductase with Pyridine Nucleotides reveal unexpected phosphatase and reductase activities. (2003) Biochemistry (38): 11150-11160.
18. **Geoffrey A. Mueller**, Eugene F. DeRose, Thomas W. Kirby, and Robert E. London. NMR Assignment of Protein Side Chains Using Residue Correlated Labeling and NOE spectra. Journal of Magnetic Resonance. (2003) 165 (2): 237-247.
17. Eugene F. DeRose, Thomas W. Kirby, **Geoffrey A. Mueller**, Katarzyna Bebenek, Miguel Garcia-Diaz, Luis Blanco, Thomas A. Kunkel, and Robert E. London. Solution Structure of the Lyase Domain of Human DNA Polymerase  $\lambda$ . (2003) Biochemistry. 42: 9564-9574.
16. Koteppa Pari, **Geoffrey A. Mueller**, Eugene F. DeRose, Thomas W. Kirby, and Robert E. London. Solution Structure of the RNase H Domain of the HIV-1 Reverse Transcriptase in the Presence of Magnesium. (2003) Biochemistry 3: 639-650.



15. U. Derewenda, J. Li, Z. Derewenda, Z. Dauter, **G. A. Mueller**, G. S. Rule, D. C. Benjamin. The crystal structure of a major house dust mite allergen Der p 2, and its biological implications. (2002) *J. Mol. Bio.* 318 (1): 189-197.
14. Thomas W. Kirby<sup>†</sup>, **Geoffrey A. Mueller**<sup>†</sup>, Eugene F. DeRose, Mark S. Lebetkin, Gregor Meiss, Alfred Pingoud, Robert E. London. The Nuclease A Inhibitor represents a new variation of the rare PR-1 fold. (2002) *J. Mol Bio.* 320 (4): 771-782.
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12. V. N. Viswanadhan, **Geoffrey A. Mueller**, S.C. Basak, John N. Weinstein. Comparison of a neural net-based QSAR algorithm (PCANN) with Hologram- and multiple linear regression-based QSAR approaches: application to 1,4-dihydropyridine-based calcium channel antagonists. (2001) *J. Chemical Information & Comp. Sci.* 41(3):505-11.
11. **Geoffrey A. Mueller**, Alisa M. Smith, Martin D. Chapman, Gordon S. Rule, and David C. Benjamin. Hydrogen Exchange Nuclear Magnetic Resonance Spectroscopy Mapping of Antibody Epitopes on the House Dust Mite Allergen Der p 2. (2001) *J. Biol. Chem.* 276: 9359-9365.
10. **Geoffrey A. Mueller**, W.Y. Choy, Nikolai R. Skrynnikov, and Lewis E. Kay. A method for incorporating dipolar couplings into structure calculations in cases of (near) axial symmetry of alignment. (2000) *J. Bio. NMR.* 18:183-188.
9. **Geoffrey A. Mueller**, W.Y. Choy, Daiwen Yang, Julie D. Forman-Kay, Ronald A. Venters, and Lewis E. Kay. Global folds of proteins with low densities of NOEs using residual dipolar couplings: Application to the 370 residue maltodextrin binding protein. (2000) *J. Mol. Bio.* 300:197-212.
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7. Daiwen Yang, Ronald A. Venters, **Geoffrey A. Mueller**, W.Y. Choy, and Lewis E. Kay. TROSY-based HNCO pulse sequences for the measurement of 1HN-15N, 15N-13CO, 1HN-13CO, 13CO-13CA, and 1HN-13CA dipolar couplings in 15N, 13C, 2H labeled proteins. (1999) *J. Bio NMR*, 14(4):333-343.
6. Natalie K. Goto, Kevin H. Gardner, **Geoffrey A. Mueller**, Randall C. Willis, and Lewis Kay. A Robust and Cost-effective Method for the Production of Val, Leu, Ile (d1) Methyl Protonated 15N-, 13C-, 2H- Labeled Proteins. (1999) *J. Bio. NMR* 13: 369-374.

5. Thomas A.E. Platts-Mills, **Geoffrey A. Mueller**, and Lisa M. Wheatley. Future Directions for Immunotherapy [Review]. (1998) *J. Allergy and Clin. Immunol.* 102: 335-343.
4. **Geoffrey A. Mueller**, David C. Benjamin, Gordon S. Rule. Tertiary Structure of the Major House Dust Mite Allergen Der p 2 Determined by NMR Methods: Sequential and Structural Homologies. *Biochemistry* (1998) 37: 12707-12714.
3. Janine Schuurman, Gerrard J. Perdok, **Geoffrey A. Mueller**, and Rob C. Aalberse. Complementation of Der p 2 induced histamine release from human basophils sensitized with monoclonal IgE: not only IgE, but also IgG antibodies directed to a non-overlapping epitope of Der p 2. *J. Allergy and Clin. Immunol.* (1998) 101: 404-9.
2. **Geoffrey A. Mueller**, Alisa M. Smith, David C. Williams Jr., Gerrit A.J. Hakkaart, Rob C. Aalberse, Martin D. Chapman, Gordon S. Rule, and David C. Benjamin. Expression and Secondary Structure Determination by NMR Methods of the Major House Dust Mite Allergen Der p 2. *J. Biol. Chem.* (1997) 272: 26893-26898.
1. Janine Schuurman, Gerrard J. Perdok, **Geoffrey A. Mueller**, David C. Benjamin, K. Yong Tan, Martin D. Chapman, and Rob C. Aalberse. Mouse/human chimeric IgG1 and IgG4 antibodies directed to the house dust mite allergen Der p 2: Use in quantification of allergen specific IgG. *Clin. Exp. Allergy*, (1997); 27: 1095-1102.

#### **PRESENTATIONS OF NOTE:**

32. Oral Abstract Presentation. International Symposium on Molecular Allergology, Amsterdam, The Netherlands. "Human Monoclonal IgE Epitopes Mapped On Der p 2". November 28, 2019
31. Invited Speaker. University of Salzburg. "Engineering Bla g 1 as a model allergen. May 25, 2018.
30. Invited Speaker. UNC Immunology Grand Rounds. "Are there common properties of allergens? Studies from mites, pollens, and cockroaches." May 4, 2108.
29. Invited Speaker. AAAAI. "Are dust mite allergens more abundant and/or more stable than other mite proteins?" March 2, 2018.
28. Invited Speaker. SERMACS, "Characterization of allergens from dust mites and cockroaches." October 26, 2016.
27. Invited Speaker. University of Salzburg, "Dust mite allergens and non-allergens". September 28, 2016.
26. Invited Speaker Medical University of Vienna, "Dust mite allergens and non-allergens". September 27, 2016.

25. Invited Speaker, PITTCON, Enhanced approaches for identifying Amadori products: application to peanut allergens. March 7, 2016.
24. Invited Speaker, Biochemistry Department Seminar, NC State University. September 4, 2014.
23. Invited Speaker, The Indoor Environment and Childhood Asthma: Implications for Home Environmental Intervention in Asthma Prevention and Management. June 19, 2014.
22. Research Triangle Park-180 Weird Science. Structural Characterization of Allergens, TED-style, 5 minute talk: <http://www.youtube.com/watch?v=DILA4flkWw0> April 16, 2013.
21. Invited Plenary Speaker, International Symposium of the PhD Program Immunity in Cancer and Allergy, University of Salzburg, Austria. "Structural Characterization of Allergens" Feb. 5, 2013.
20. Invited Speaker, SERMACS, Raleigh NC. "Structural and Biochemical Characterization of Allergens" Nov. 17, 2012.
19. Invited Speaker, Triangle NMR Discussion Group Symposium, Kannapolis NC. Dec 1, 2011. "Chemical Shift Analysis."
18. Invited Speaker, Outstanding Staff Scientist. NIEHS Science Awards Day presentation. Nov. 3, 2011.
17. Invited Speaker and Session Chair, 13<sup>th</sup> International Paul-Ehrlich-Seminar Allergen Products for Diagnosis and Therapy: Regulation and Science. September 14-17. 2011.
16. Invited Speaker, University of Vienna (Austria), May 27, 2011. "Structural Characterization of Allergens from Dust Mites and Peanuts."
15. Invited Speaker, Mini-Symposium Retreat on Allergen Structure and Function, University of Virginia. October 5, 2010 "Structural and Functional Characterization of Dust Mite Allergens Der p 5 and Der p 7."
14. Invited Speaker, Cincinnati Children's Hospital Medical Center, Sept 20, 2010. "Structural Characterization of Allergens from Dust Mites and Peanuts."
13. Oral Presentation, American Academy of Asthma, Allergy, and Immunology Annual Meeting, March 1, 2010. "The Der p 7 crystal structure reveals similarities to innate immune proteins."
12. Invited Speaker, Department of Molecular Physiology and Biophysics, University of Virginia. Nov. 10, 2009. "The Structure of the Dust Mite Allergen Der p 7 Reveals Similarities to Innate Immune Proteins."
11. Invited Speaker, Southeast Magnetic Resonance Conference. Nov 8, 2009. "Analytical solution to the coupled evolution of multidimensional NMR data."

10. Invited Speaker, Merck. Feb. 28, 2008. "Investigating the inactivity of the isolated HIV RNase H domain and the role of the C-terminal Helix"
9. Invited Speaker, Keystone conference on NMR in structural Biology. "Labeling Schemes to Study DNA Repair Proteins by NMR, Studies of Polymerase beta"
8. Invited Speaker, Wyeth Research, May 15-16, 2006. "Dynamic Characterization of a DNA Repair Enzyme: NMR Studies of DNA polymerase  $\beta$ ."
7. Oral Presentation, NC – ACS Sectional Conference, Raleigh, NC, April 30, 2005. "NMR Solution structure of the *E. coli* DNA Polymerase III  $\theta$  subunit."
6. Invited Speaker, City of Hope, Department of Immunology. January 23, 2004. "Assignment of residue type with artificial neural networks using residue correlated labeling and NOE spectra."
5. Oral Presentation, NC – ACS Sectional Conference, Chapel Hill, NC. April 26, 2003. "Dynamics of the RNase H domain of the HIV-1 reverse transcriptase in the presence of magnesium and AMP."
4. Oral Presentation, SE Magnetic Resonance Conference, Raleigh, NC, October 26, 2002. "The Nuclease A inhibitor represents a new variation of the rare PR-1 fold"
3. Oral Presentation, AAAAI Meeting, Washington D.C. March 17, 1998  
"The NMR structure of Der p 2 and localization of 3 mAb epitopes by hydrogen exchange protection"
2. Invited Speaker, Swineford Allergy Conference, University of Virginia, May 1997  
"Preliminary NMR structure of the major house dust mite allergen Der p 2 and potential uses in designing immunotherapies"
1. Oral Presentation, AAAAI/AAI/CIS Joint Meeting, San Francisco, February 1997  
"Expression and NMR studies of the major house dust mite allergen Der p 2"