Lara K. Mahal

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Director, Glycomics Institute of Alberta
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Education

University of California, Santa Cruz , B.A. in Chemistry, *with Highest Honors* (June 1995)
Research Director: Professor Rebecca Braslau

University of California, Berkeley Ph.D. in Chemistry (December 2000)
Research Director: Professor Carolyn R. Bertozzi

Sloan-Kettering Institute, Jane Coffin Childs Postdoctoral Fellow (October 2000-June 2003)
Program of Cellular Biochemistry and Biophysics
Research Director: Dr. James E. Rothman

Awards and Honors

University of California, Regents Scholar (August 1993-June 1995)
Ellen D. Renard Scholar (August 1993-June 1994)
Achievement Rewards for College Scientists (ARCS) Foundation Scholar (U.C. Santa Cruz, August 1994-June 1995; U.C. Berkeley, August 1996-June 1997 and, August 1997-June 1998)
Drexler Scholar (August 1994-June 1995)
Phi Beta Kappa (1995)
Division of Medicinal Chemistry Pre-doctoral Fellow, A.C.S. (1998-1999)
Jane Coffin Childs Postdoctoral Fellow (November 2000- July 2003)
Fellow, Institute for Cellular and Molecular Biology, U.T. Austin (August 2003-present)
Recipient of *Synthesis* and *Synlett* Assistant Professor Journal Award (2004)
Beckman Young Investigator Award (2004)
Invited Member, Faculty of 1,000, Biology (2006-2008, 2009-2014)
NSF CAREER Award Recipient (2007)
Sloan Foundation Fellow (2008)
NIH Director's New Innovator Awardee (2008)
Golden Dozen Teaching Award-*NYU* (2016)
Horace Isbell Award for Carbohydrate Chemistry (2017)
Canada Excellence Research Chair in Glycomics (2019-*present*)
Goldstein Lectureship, University of Michigan (2021)

Professional Experience

Professor, University of Alberta (September 2019-*present*)
Professor, New York University (Sept. 2016-August 2019)
Associate Professor, New York University (June 2009-August 2016)
Adjunct Professor, University of Texas at Austin, (June 2009-August 2011)
Assistant Professor, University of Texas at Austin (2003-May 2009, tenured 2009)

Founding Director, Glycomics Institute of Alberta (June 2022-present)

Associate Director Clinical Partnerships, GlycoNet (May 2020-Dec. 2021)

Executive Committee, Carbohydrate Division, ACS (2022-present)
Awards Committee, Carbohydrate Division, ACS (2019-2021)
Nominating Committee, Society for Glycobiology (2017-2019)

Panelist, Academia Sinica Life Sciences Division Review-Chemical Biology (2022)
Member, Site Visit Review, Chemical Biology Laboratory, NCI (2022)
Chair, Advisory Committee K-12 Translational Glycosciences Program, UCSD (2021)
Advisory Panel, Programs of Excellence in Glycoscience, NHLBI (October. 2011-May 2018)
Member, EBIT Study Section, NIH (September 2012-June 2018)

Co-Organizer, *Recent Advances in Carbohydrate Chemistry and Chemical Glycobiology,* Pacifichem, 2020 *(shifted to 2021)*
Co-Organizer, Joint GlycoNet/ACS Carbohydrate Chemistry Webinar (dFall 2020)
Organizer, GlycoNet Webinar Series I, (Spring-Summer 2020)Co-Organizer, *Frontiers in Glycobiology Theme*, ASBMB, Experimental Biology 2014

Editor, *Current Protocols in Chemical Biology* (June 2009- present)
Editorial Board Member, *Journal of Biological Chemistry* (June 2016-2020)

Reviewer for:
Cell, Journal of the American Chemical Society, PNAS, Nature Chemical Biology, Nature Biotechnology, Journal of Biological Chemistry, Biochemistry, ACS Central Science, ChemBioChem, ACS Chemical Biology, Carbohydrate Research, Glycobiology.

Professional Societies

American Chemical Society (1995-present)
American Association for the Advancement of Science (1998-present)
Society for Glycobiology (2012-present)

Peer Reviewed Publications: HQP are underlined.

97. Li, Z.; Bui, D.T.; Shao, S.; Kitova, E.; White, S.; Vesprini, D.; Liu, S.K.; **Mahal, L.K.**; Leong, H.S.; Klassen, J.S. Native Mass Spectrometry Quantitation of α2-3-linked N-Acetylneuraminic Acid Content of Prostate-Specific Antigen: An Accurate Liquid Biopsy for Clinically Significant

Prostate Cancer, *Analytical Chemistry*, **2023,** *95*, 10903-1091. doi: 10.1021/acs.analchem.3c00289

96. Bui, D.T.; Favell, J., Kitova; E., Li, Z.; McCord, K.A.; Schmidt, E.; Mozaneh, F.; Elaish, M.; El-Hawiet, A.; St-Pierre Y.; Hobman, T.; Macauley, M.; **Mahal, L.K.**; Flynn, M.; Klassen, J.S. Absolute Affinities from Quantitative Shotgun Glycomics Using Concentration-Independent (COIN) Native Mass Spectrometry. *ACS Central Science,* **2023**, *9*, 1374-1387. doi:10.1021/acscentsci.3c00294

95. Wang, C.; Honce, R.; Salvatore, M.; Yang, J.; Twells, N.M.; **Mahal, L.K.**; Schultz-Cherry, S.; Ghedin, E. Reduced inflammatory response and promoted multiciliated cell differentiation in mice protected by defective interfering influenza virus. *Journal of Virology,* **2023,** e00493-23. doi: 10.1128/jvi.00493-23.

Formerly: bioRixv, **2022**, doi: 10.1101/2022.01.25.477719.

94. Schmidt, E.N.; Lamprinaki, D.; McCord, K.A.; Joe, M.; Sojitra, M.; Waldow, A.; Nguyen, J.; Manyror, J.; Kitova, E.; Mozaneh, F.; Gao, X.Y.; Jung, J.; Enterina, J.R.; Daskhan, G.C.; Han, L.; Krysler, A.R.; Cromwell, C.R.; Hubbard, B.P.; West, L.J.; Kulka, M.; Sipione, S.; Klassen, J.S.; Derda, R.; Lowary, T.L.; **Mahal, L.K.**; Riddell, M.; Macauley, M.S. Siglec-6 mediates the uptake of extracellular vesicles through a noncanonical glycolipid binding pocket, *Nature Communications,* **2023**, *14,* 2327. doi:10.1038/s41467-023-38030-6.

93. Jame-Chenarboo, F.; Ng, H.H.; Macdonald, D.; **Mahal, L.K.** High-Throughput Analysis Reveals miRNA Upregulating α-2,6-Sialic Acid through Direct miRNA−mRNA Interactions. *ACS Central Science,* **2022**, *8*, 1527-1536. doi: 10.1021/acscentsci.2c00748.

Formerly, bioRixv, **2022**, doi: 10.1101/2022.04.01.486772.

92. Qin, R.; Kurz, E.; Chen, S.; Zeck, B.; Chiribogas, L.; Jackson, D.; Herchen, A.; Attia, T.; Carlock, M.; Rapkiewicz, A.; Bar-Sagi, D.; Ritchie, B.; Ross, T.M.; **Mahal, L.K.** α-2,6-Sialylation is Upregulated in Severe COVID-19 Implicating the Complement Cascade. *ACS Infectious Disease,* **2022**, *8*, 2348-2361. Doi: 10.1021/acsinfecdis.2c00421.

Formerly: medRixv, doi: 10.1101/2022.06.06.22275981.

91. Qin, R.: **Mahal, L.K.**; Bojar, D. Deep Learning Explains the Biology of Branched Glycans from Single-Cell Sequencing Data. *iScience,* **2022,** *25*, 105163. doi: 10.1016/j.isci.2022.105163

Formerly: bioRixv doi: 10.1101/2022.06.27.497708.

90. Bui, D.T.; Kitova, E.H.; **Mahal, L.K.**; Klassen, J.S. Mass Spectrometry-Based Shotgun Glycomics for Discovery of Natural Ligands of Glycan-Binding Proteins. *Current Opinion in Structural Biology,* **2022**, *77*, 1024-1048. doi: 10.1016/j.sbi.2022.102448

89. Cummings, R.; Etzler, M.; Hahn, M.G.; Darvill, A.; Godula, K.; Woods, R.J.; **Mahal, L.K.** Glycan-Recognizing Probes as Tools. *in:* Essentials of Glycobiology, 4th Edition. Cold Spring Harbor (NY); Cold Spring Harbor Laboratory Press **2022**, Ch. 48.

88. Qin, R.; Meng, G.; Pushalkar, S.; Carlock, M.A.; Ross, T.; Vogel, C.; **Mahal, L.K.** Glycomic Analysis Identifies Pre-Vaccination Markers of Response to Influenza Vaccine, Implicating the Complement Pathway. *J. Proteome Res.* **2022**, *2,* 1974-1985.
Formerly: medRixv, doi: 10.1101/2022.02.09.22270754).

87. Bui, D.T.; Li, Z.; Kitov, P.I., Han, L.; Kitova, E.N.; Fortier, M.; Fuselier, C.; de Boissel, P.G.J.; Chatenet, D.; Doucet, N.; Tompkins, S.M.; St-Pierre, Y.; **Mahal, L.K.;** Klassen, J.S. Quantifying Biomolecular Interactions using Slow Mixing Mode (SLOMO) Nanoflow ESI-MS *ACS Cent. Sci.* **2022** *8*, 963-974.

86. Xu, Z.; Choi, J.-H.; Dai, D.L.; Luo, J.; Ladak, R.J.; Li, Q.; Wang, Y.; Zhang, C.; Wiebe, S.; Liu, A.C.H.; Ran, X.; Yang, J.; Naeli, A.; Zhou, L.; Mahmood, N.; Deng, Q.; Elaish, M.; Lin, R.; **Mahal, L.K**; Hobman, T.C.; Pelletier, J.; Alain, T.; Vidal, S.M.; Duchaine, T.; Mazhab-Jafari, M.T.; Mao, X.; Jafanejad, S.M.; Sonenberg, N. SARS-CoV-2 impairs interferon production via NSP2-induced repression of mRNA translation. *Proc. Natl. Acad. Sci., USA,* **2022**, *119*, e2204539119.

85. Heindel, D.W.; Aziz, P.A.; Chen, S.; Marth, J.D.; **Mahal, L.K.** Glycomic analysis reveals a conserved response to bacterial sepsis induced by different bacterial pathogens. *ACS Infectious Disease,* **2022**, *8*, 1075-1085.
Formerly: bioRxiv, doi: 10.1101/2020.12.11.421610.

84. Bui, D.T.; Jung, J.; Kitova, E.N.; Li, Z.; Willows, S.D.; Boddington, M.E.; Kitov, P.I.; Mason, A.L.; Capicciotti, C.J.; **Mahal, L.K.**; Macauley, M.S.; Klassen, J.S. Mass Spectrometry-based Shotgun Glycomics using Labeled Glycan Libraries, *Analytical Chemistry,* **2022,** *94*, 4997-5005.

83. Bojar, D.; Meche, L.; Meng, G.; Eng, W.; Smith, D.F.; Cummings, R.D.; **Mahal, L.K.** A Useful Guide to Lectin Binding: Machine-Learning Directed Annotation of 57 Unique Lectin Specificities. *ACS Chemical Biology,* **2022,** *17,* 11, 2993-3012.
Formerly: bioRixv, doi: 10.1101/2021.08.31.458439.

82. Walker, M.R.; Goel, H.L.; Mukhopadhyay, D.; Chhoy, P.; Karner, E.R.; Clark, J.L., Liu, H.:, Li, R.; Zhu, J.L.; Chen, S.; **Mahal, L.K.**, Bensing, B.A.; Mercurio, A. O-linked α-2,3 sialylation confers stem cell properties in breast cancer. *Science Advances,* **2022**, *8*, eabj9513. doi: 10.1126/sciadv.abj9513.

81. Nguyen, L.; McCord, K.A.; Bui, D.T.; Bouwman, K.M.; Kitova, E.N.; Elaish, M.; Kumawat, D.; Daskhan, G.C.; Tomris, I.; Han, L.; Chopra, P.; Yang, T.-J.; Willows, S.D.; Mason, A.L.; **Mahal, L.K.**; Lowary, T.L.; West, L.J.; Hsu, S.-T.D.; Hobman, T., Tompkins, S.M.; Boons, G.-J.; de Vries, R.P.; Macauley, M.S.; Klassen, J.S. Sialic acid-Dependent Binding and Viral Entry of SARS-CoV-2. *Nature Chemical Biology,* **2022**, *18*, 81-90.

80. Li, Z.; Kitov, P.; Kitova, E.; Bui, D.T.; Moremen, K.; Wakarchuk, W.; **Mahal, L.K.**; Macauley, M.; Klassen, J. Quantifying CAZyme Activity with Glycoprotein Substrates using ESI-MS and Center-of-Mass Monitoring (CoMMon), *Analytical Chemistry,* **2021**, *93,* 15262-15270.

79. Jung, J.; Enterina, J.R.; Bui, D.T.; Mozaneh, F.; Lin, P.-H.; Nitin; Kuo, C.-W.; Rodrigues, E.; Bhattacherjee, A.; Raeisimakiani, P.; Daskhan, G.C.; St. Laurent, C.D.; Khoo, K.-H.; **Mahal, L.K.**; Klassen, J.S.; Macauley, M.S. Carbohydrate sulfation as a mechanism for fine-tuning Siglec ligands. *ACS Chemical Biology,* **2021**, *16*, 2673-2689 **.**
Formerly: bioRixv, doi: 10.1101/2021.06.27.450109.

78. Chen, S.; Vurusaner, B.; Pena, S.; Thu, C.T.; **Mahal, L.K.**; Fisher, E.; Canary, J. A two-photon, ratiometric, quantitative fluorescent probe reveals fluctuation of peroxynitrite regulated by arginase 1., *Analytical Chemistry,* **2021,** *93*, 10090-10098. doi: 10.1021/acs.analchem.1c0091.

77. Thu, T.C.; Chung, J.Y.; Dhawan, D.; Vaiana, C.A.; **Mahal, L.K.** High-Throughput miRFluR Platform Identifies miRNA Regulating B3GLCT That Predict Peters' Plus Syndrome Phenotype, Supporting the miRNA Proxy Hypothesis, *ACS Chemical Biology,* **2021**, *16,* 1900-1907. doi*:* 10.1021/acschembio.1c00247.
Formerly: bioRixv, doi: 10.1101/2021.04.01.43813.

76. Kuman, A.; Ishida, R.; Strilets, T.; Cole, J.; Lopez-Orozco, J.; Fayad, N.; Felix-Lopez, A.; Elaish, M.; Evseev, D.; Magor, K.; **Mahal, L.K.**; Nagata, L.; Evans, D.; Hobman, T. SARS-CoV-2 non-structural protein 1 inhibits the interferon response by causing depletion of key host signaling factors. *Journal of Virology,* **2021**, *95*, e0026621. doi: 10.1128/JVI.00266-21.

75. Kurz, E.; Chen, S.; Vucic, E.; Baptiste, G.; Loomis, C.; Agrawal, P.; Hajdu, C.; Bar-Sagi, D.*; **Mahal, L.K. *** Integrated Systems-Analysis of the Murine and Human Pancreatic Cancer Glycomes Reveals a Tumor Promoting Role for ST6GAL1. *Molecular and Cellular Proteomics,* **2021**, *20*, 100160. doi: 10.1016/j.mcpro.2021.100160. **Co-corresponding authors.*
Formerly: bioRixv, doi: 10.1101/2021.03.10.434864.

74. Chen, S.; Qin, R.; **Mahal, L.K.** Technologies for Glycomic Analysis and their Integration into Systems Biology. *Critical Reviews in Biochemistry and Molecular Biology,* **2021**, *5*, 1-20. doi: 10.1080/10409238.2021.1908953.

73. Noordwijk, K.J.; Qin, R.; Diaz-Rubio, M.E.; Zhang, S.; Su, J.; **Mahal, L.K.**; Reesink, H.L. Metabolism and global protein glycosylation are differentially expressed in the healthy and osteoarthritic equine carpal synovial fluid. *Equine Veterinary Journal* , **2022,** *54,* 323-333. doi: 10.1111/evj.13440.

72. Báez Bolivar, E; Bui, D.; Kitova, E.; Han, L.; Zheng, R.; Luber, E.; Sayed, S.; **Mahal, L.K.**; Klassen, J. Submicron Emitters Enable Reliable Quantification of Weak Protein-Glycan Interactions by ESI-MS. *Analytical Chemistry*, **2021**, *93* 4231-4239. doi: 10.1021/acs.analchem.0c05003.

71. Song, W.-M.; Agrawal, P.; Von Itter, R.W.; Fontanals-Cirera, B.; Wang, M.; Zhou, X.; **Mahal, L.K.**; Hernando, E.; Zhang, B. Integration of Multi-Omics Data Identifies Novel Network

Models of Primary Tumor Microenvironment and Key Regulators of Melanoma. *Nature Communications,* **2021** *12*, 1214. doi: 10.1038/s41467-021-21457-0.

70. Qin, R.; **Mahal, L.K.** The Host Glycomic Response to Pathogens. *Current Opinion in Structural Biology,* **2021**, *68,* 149-156. doi: 10.1016/j.sbi.2020.12.011.

69. Bernard, I.: Limonta, D.; **Mahal, L.K.**; Hobman, T.C. Endothelium Infection and Dysregulation by SARS-CoV-2: Evidence and Caveats in COVID-19. *Viruses*, **2020,** *13,* E29. doi: 10.3390/v13010029.

68. Kasper, D.M.; Hintzen, J.; Wu, Y.; Ghersi, J.J.; Mandl, H.K.; Salina, K.E.; Armero, W.; Hel, Z.; Sheng, Y.; Heindel, D.W.; Park, E.J.; Sessa, W.C.; **Mahal, L.K.**; Lebrilla, C.; Hirschi, K.K.; Nicoli, S. The N-Glycome regulates the endothelial to hematopoietic transition. *Science*, **2020** *370,* 1186-1191. doi: 10.1126/science.aaz2121.

67. Chen, S.; Kasper, B.; Zhang, B.; Lashua, L.P.; Ross, T.M.; Ghedin, E.; **Mahal, L.K.** Age-dependent glycomic response to the 2009 pandemic H1N1 influenza virus and its association with disease severity. *J. Proteome Res.* **2020**, *19,* 4486-4495. doi: 10.1021/acs.jproteome.0c00455.
Formerly: bioRxiv, doi: 10.1101/2020.06.22.165613.

66. Heindel, D.W.; Koppolu, S.; Zhang, Y.; Kasper, B.; Meche, L.; Vaiana, C.A.; Bissel, S.J.; Carter, C.E.; Kelvin, A.A.; Elaish, M.; Lopez-Orozco, J.; Zhang, B.; Zhou, B.; Chou, T.-W.; Lashua, L.; Hobman, T.C.; Ross, T.M.; Ghedin, E.; **Mahal, L.K.** Glycomic Analysis of host-response reveals high mannose as a key mediator of influenza severity. *Proc. Natl. Acad. Sci., USA* **2020**, *117,* 26926-26935. doi: 10.1073/pnas.2008203117.
Formerly: bioRxiv. doi*: 10.1101/2020.04.21.054098.*

65. De Leoz, M.L., **et al**. NIST Interlaboratory Study on Glycosylation Analysis of Monoclonal Antibodies: Comparison of Results from Diverse Analytical Methods. *Molecular and Cellular Proteomics*, **2020**, *19,* 11-30. doi: mcp.RA119.001677.

64. Thu, C.T.; **Mahal, L.K.** Sweet Control: MicroRNA Regulation of the Glycome. *Biochemistry*, **2020**, *59,* 3098-3110. doi: 10.1021/acs.biochem.9b00784.

63. Bandini, G.; Leon D.R.; Hoppe, C.M.; Zhang, Y.; Agop-Nersesian, C.; Shears, M.J.; **Mahal, L.K.**; Routier, F.H.; Costello, C.E.; Samuelson, J. *O*-fucosylation of thrombospondin-like repeats is required for processing of microneme protein 2 and for efficient host cell invasion by *Toxoplasma gondii* tachyzoites. *J. Biol. Chem,* **2019,** *294*, 1967-1983. doi: 10.1074/jbc.RA118.005179.

62. Koppolu, S.; Wang, L.; Mathur, A.; Nigam, J.A.; Dezzutti, C.S.; Isaacs, C.; Meyn, L.; Bunge, K.E.; Moncla, B.J.; Hillier, S.L.; Rohan, L.C.; **Mahal, L.K.** Vaginal Product Formulation Alters the Innate Anti-viral Activity and Glycome of Cervicovaginal Fluids with Implications for Viral Susceptibility. *ACS Infectious Disease,* **2018***, 4,* 1613-1622. doi: 10.1021/acsinfecdis.8b00157.

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60. Gaschler, M.M.; Andia, A.A.; Csuka, J.; Hurlocker, B.; Vaiana, C.A.; Zuckerman, D.S.; Liu, H.; Heindel, D.W.; Bos, P.H.; Reznik, E.; Ye, L.; Tyurina, Y.Y.; Lin, A.; Shchepinov, M.; Chan, A.Y.; Peguero-Periera, E.; Fomich, M.A.; Bekish, A.V.; Shmanai, V.V.; Kagan, V.E.; **Mahal, L.K.**; Stockwell, B. R.; Woerpel, K.A. $FINO_2$ initiates ferroptosis through Gpx4 inactivation and iron oxidation. *Nature Chemical Biology,* **2018**, *15*, 507-515. doi: 10.1038/s41589-018-0031-6.

59. Agrawal, P.; Fontanais-Cierera, B.; Sokolova, E.; Jacob, S.; Vaiana, C.A.; Argibay, D.; Davalos, V.; McDermott, M.; Nayak, S.; Darvishian, F.; Castillo, M.; Ueberheide, B.; Osman, I.; Fenyö, D., **Mahal, L.K. *,** Hernando, E. * A systems biology approach identifies FUT8 as a novel driver of melanoma metastasis. *Cancer Cell,* **2017,** *31,* 804-819. doi:10.1016/j.ccell.2017.05.007. **Co-corresponding authors.*

58. Daley, D.; Mani, V.R; Mohan, N.; Akkad, N.; Ochi, A.; Lee, K.B.; Heindel, D.W., Zambrinis, C.O.; Werba, G.; Barrilla, R.M.; Torres-Hernandez, A.; Nayak, S.; Wang, D.; Hundeyin, M.; Ismail, K.; Diskin, B.; Aykut, B.; Rodriguez, R.; Chang, S.; Gardner, L.; **Mahal, L.K.;** Ueberheide, B.; Miller, G. Dectin-1 Activation on Macrophages by Galectin-9 Promotes Pancreatic Carcinoma and Peritumoral Immune-Tolerance. *Nature Medicine* **2017**, *23,* 556-567. doi: 10.1038/nm.4314.

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56. Ribeiro, J.P.; Pau, W.K.; Pifferi, C.; Renaudet, O; Varrot, A; **Mahal, L.K.***; Imberty, A.* Characterization of a high-affinity sialic acid specific CBM40 from Clostridium perfringens and engineering of a divalent form. *Biochem. J.* **2016**, *473*, 2109-18. doi: 10.1042/BCJ20160340. **Co-corresponding authors.*

55. Grant, O.C.; Tessier, M.B.; Meche, L.; **Mahal, L.K.**; Foley, B.L.; Woods, R.J. Combining 3D Structure with Glycan Array Data Provides Insight into the Origin of Glycan Specificity. *Glycobiology,* **2016**, *26*, 772-83. doi: 10.1093/glycob/cww020.

54. Hoashi, M.; Meche, L.; **Mahal, L.K.;** Bakacs, E.; Nardella, D.; Naftolin, F.; Bar-Yam, N.; Dominguez-Bello, M.G. Human Milk Bacterial and Glycosylation Patterns Differ by Delivery Mode. *Reproductive Sciences*, **2016**, *23*, 902-7. doi: 10.1177/1933719115623645.

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52. Vaiana, C.A.; Kurcon, T.; **Mahal, L.K.** MicroRNA-424 Predicts a Role for β-1,4 Branched Glycosylation in Cell Cycle Progression. *J. Biol. Chem.,* **2016**, *291*, 1529-37. doi: 10.1074/jbc.M115.672220.

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49. Wang, L.; Koppolu, S.; Chappell, C.; Moncla, B.J.; Hillier, S.L.; **Mahal, L.K**. Studying the effects of reproductive hormones and bacterial vaginosis on the glycome of lavage samples from the cervicovaginal cavity. *PLoS One*, **2015**, *10*, e0127021. doi: 10.1371/journal.pone.0127021.

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46. Liang, Y.; Eng, W.S.; Colquhoun, D.R.; Dinglasan, R.R.; Graham, D.R.; **Mahal, L.K.** Complex *N*-linked Glycans Serve as a Determinant for Exosome/Microvesicle Cargo Recruitment. *J. Biol. Chem.,* **2014**, *289,* 32526-37. doi: 10.1074/jbc.M114.606269.

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