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Towards the identification of metabolite markers of nipple pain and inflammation in human milk

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References

Abou-Dakn, M., Richardt, A., Schaefer-Graf, U., & Wöckel, A. (2010). Inflammatory breast diseases during lactation: milk stasis, puerperal mastitis, abscesses of the breast, and malignant tumours – current and evidence-based strategies for diagnosis and therapy. *Breast Care*, *5*(1), 33–37. doi:10.1159/000272223

American Academy of Pediatrics. (1997). Breastfeeding and the use of human milk. *Pediatrics, 115*(2), 496-506. doi: 10.1542/peds.2004-2491

American Academy of Pediatrics. (2012). Breastfeeding and the use of human milk. *Pediatrics, 129*(3), 827-841. doi: 10.1542/peds.2011-3552

Amir, L., Forster, D., McLachlan, H. & Lumley, J. (2004). Incidence of breast abscess in lactating women: report from an Australian cohort. *BLOG: an International Journal of Obstetrics and Gynaecology*, *111*(12), 1378-1381. doi: 10.1111/j.1471-0528.2004.00272

Amir, L., Cullinane, M., Garland, S., Tabrizi, S., Donath, S., Bennett, C., Cooklin, A., Fisher, J. & Payne, M. (2011). The role of microorganisms (*Staphylococcus aureus* and *Candida albicans*) in the pathogenesis of breast pain and infection in lactating women: study protocol. *BMC Pregnancy and Childbirth, 11*, 54-64. doi: 10.1186/1471-2393-11-54

Amir, L., Donath, S., Garland, S., Tabrizi, S., Bennett, C., Cullinane, M., & Payne, M. (2013). Does Candida and/or Staphylococcus play a role in nipple and breast pain in lactation? A cohort study in Melbourne, Australia. *BMJ Open, 3*(3). doi: 10.1136/bmjopen-2012-002351

Anatolitou, F. (2012). Human milk benefits and breastfeeding. *Journal of Pediatric and Neonatal Individualized Medicine, 1*(1), 11-18. doi: 10.7363/010113

Arthur, P. G., Smith, M., and Hartman, P. (1989). Milk lactose, citrate and glucose as markers of lactogenesis in normal and diabetic women. *Journal of Pediatric gastroenterology and nutrition, 9* (4), 488-496.

Australian Breastfeeding Association. (2015). Exclusive expressing. Retrieved from https://www.breastfeeding.asn.au/bfinfo/exclusive-expressing

Australian Bureau of Statistics. (2003). Breastfeeding in Australia, 2001 (No. 4810.0.55.001). Retrieved from http://www.abs.gov.au/ausstats/abs@.nsf/mf/4810.0.55.001

Aryeetey, R., Marquis, G., Timms, L., Lartey, A., & Brakohiapa, L. (2008). Subclinical mastitis is common among Ghanaian women lactating 3 to 4 months postpartum. *Journal of Human Lactation: Official Journal of International Lactation Consultant Association, 24*(3), 263-7. doi: 10.1177/0890334408316077

Berry, C. (2009). Cells from breastmilk and the mammary gland: Characterisation of storage, apoptosis and Wnt signalling. School of Anatomy and Human Biology, University Of Western Australia. Retrieved from http://repository.uwa.edu.au:80/R/-?func=dbin-jump-full&object_id=13138&silo_library=GEN01

Boudonck, K., Mitchell, M., Wulff, J. & Ryals, J. (2009). Characterization of the biochemical variability of bovine milk using metabolomics. *Metabolomics*, *5*(4), 375-386. doi: 10.1007/s11306-009-0160-8

Bressanello, D., Liberto, E., Collino, M., Reichenbach, S., Benetti, E., Chiazza, F., Bicchi, C. & Cordero, C. (2014). Urinary metabolic fingerprinting of mice with diet induced metabolic derangements by parallel dual secondary column-dual detection two-dimensional comprehensive gas chromatography. *Journal of Chromatography A, 1361*, 265-276. doi: 10.1016/j.chroma.2014.08.015

Brown, K., Akhtar, N., Robertson, A., & Ahmed, M. (1986). Lactational capacity of marginally nourished mothers: Relationships between maternal nutritional status and quantity and proximate composition of milk. *Pediatrics, 78*(5), 909-19.

Buck, M., Amir, L., Cullinane, M., & Donath, S. (2014). Nipple pain, damage, and vasospasm in the first 8 weeks postpartum. *Breastfeeding Medicine, 9*(2), 56-62. doi: 10.1089/bfm.2013.0106

Chung, M. (2014). Factors Affecting Human Milk Composition. *Pediatrics & Neonatology, 55*(6), 421-422. doi:10.1016/j.pedneo.2014.06.003

Cooper, A. (1840). Anatomy of the Breast. London, UK: Longman, Orme, Green, Browne and Longmans.

Crepinsek, M., Crowe, L., Michener, K. & Smart, N. (2012). Interventions for preventing mastitis after childbirth. *The Cochrane Database of Systemic Reviews*, *10*(1), 1-14. doi: 10.1002/14651858.CD007239.pub3

De Livera, A., Dias, D., De Souza, D., Rupasinghe, T., Pyke, J., Tull, D., Roesssner, U., Mcconville, M. & Speed, T. (2012). Normalizing and integrating metabolomics data. *Analytical Chemistry, 84*(24), 10768-76. doi: 10.1021/ac302748b

Delgado, S., Arroyo, R., Jimenez, E., Marin, M., del Campo, R., Fernadez, L. & Rodriguez, J. (2009). *Staphylococcus epidermis* strains isolated from breast milk of women suffering infectious mastitis: potential virulence traits and resistance to antibiotics. *BMC Microbiology, 82*(9), 82-93. doi: 10.1186/1471-2180-9-82

Dunn, W., Broadhurst, D., Begley, P., Zelena, E., Francis-Mcintyre, S., Anderson, N., Brown, M., Knowles, J., Halsall, A., Haselden, J., Nicholls, A., Wilson, I., Kell, D. & Goodacre, R. (2011). Procedures for large-scale metabolic profiling of serum and plasma using gas chromatography and liquid chromatography coupled to mass spectrometry. *Nature Protocols, 6*(7), 1060. doi: 10.1038/nprot.2011.335

Dunnivant, F. & Ginsbach, J. (2008). The gas chromatograph [Image]. Retrieved from http://people.whitman.edu/~dunnivfm/C_MS_Ebook/CH2/2_3.html.

Edmands, W., Barupal, D., & Scalbert, A. (2014). MetMSLine: an automated and fully integrated pipeline for rapid processing of high resolution LC-MS metabolomic datasets. *Bioformatics, 31*(5), 788-790. doi: 10.1093/bioinformatics/btu705

Eglash, A., Plane, M. & Mundt, M. (2006) History, physical and laboratory findings and clinical outcomes of lactating women treated with antibiotics for chronic breast and/or nipple pain. *Journal of Human Lactation, 22*(4), 429- 433. doi: 10.1177/0890334406293431

Eilers, E., Ziska, T., Harder, T., Plagemann, A., Obladen, M. & Loui, A. (2011). Leptin determination in colostrum and early human milk from mothers of preterm and term infants. *Early Human Development, 87*(6), 415-9. doi: 10.1016/j.earlhumdev.2011.03.004

Ekstroem, A., Widstroem, A., & Nissen, E. (2003). Duration of Breastfeeding in Swedish Primiparous and Multiparous Women. *Journal of Human Lactation,19*(2), 172-178. doi: 10.1605/01.301-0007911361.2009

Fanos, V., Barberini, L., Antonucci, R. & Atzori, L. (2012). Pharma-metabolomics in neonatology: is it a dream or a fact? *Current Pharmaceutical Design*, *21*(18), 2996-3006. Retrieved from http://www.ingentaconnect.com/content.

Fetherston, C. (1997). Characteristics of lactation mastitis in a Western Australian cohort. *Breastfeeding Review: Professional Publication of the Nursing Mothers' Association of Australia, 5*(2), 5-11.

Fetherston, C. (2001). Mastitis in lactating women: physiology or pathology? *Breastfeeding Review, 9*(1), 5-12. Retrieved from http://search.informit.com.au/documentSummary;dn=441738517422302;res=IELAPA

Fetherston, C., Lai, C., & Hartmann, P. (2006). Relationships between symptoms and changes in breast physiology during lactation mastitis. *Breastfeeding Medicine : The Official Journal of the Academy of Breastfeeding Medicine, 1*(3), 136-45. doi:10.1089/bfm.2006.1.136

Filteau, G., Lietz, S., Mulokozi, S., Bilotta, S., Henry, s., & Tomkins, S. (1999). Milk cytokines and subclinical breast inflammation in Tanzanian women: Effects of dietary red palm oil or sunflower oil supplementation. *Immunology, 97*(4), 595-600. doi: 10.1046/j.1365-2567.1999.00834.x

Fitzpatrick, M., & Young, S. (2013). Metabolomics- a novel window into inflammatory disease. *Swiss Medical Weekly, 143* (1). doi: 10.4414/smw.2013.13743

Foxman, B., D'Arcy, H., Gillespie, B., Bobo, J. & Schwatz, K. (2002). Lactation mastitis: occurrence and medical management among 946 breastfeeding women in the United States. *American Journal of Epidemiology, 155*(2), 103-114. doi: 10.1093/aje/155.2.103

Francki, M., Hayon, S., Gummer, J., Rawlinson, C. & Trengove, R. (2015). Metabolomic profiling and genomic analysis of wheat aneuploidy lines to identify genes controlling biochemical pathways in mature grain. *Plant Biotechnology Journal*, 1-12. doi: 10.1111/pbi.12410

Geddes, D. (2007). Inside the lactating breast: The latest anatomy research. *Journal of Midwifery & Womens Health, 52*(6), 556-563. doi: 10.1016/j.jmwh.2007.05.004

Gephart, P., Murray, R., Costilow, R., Nester, W., Wood, W., Krieg, N. and G. B Phillips, G. (1981). Manual of Methods for General Bacteriology, ASM Press, Washington D.C.

Godfrey, J., & Lawrence, R. (2010). Toward optimal health: The maternal benefits of breastfeeding. *Journal of Women's Health (2002), 19*(9), 1597-602. doi: 10.1089/jwh.2010.2290

Gooding, M., Finlay, J., Shipley, J., Duck, F., & Halliwell, M. (2010). Three-dimensional ultrasound imaging of mammary ducts in lactating women: A feasibility study. *Journal of Ultrasound in Medicine, 29*(1), 95-103.

Google maps. (2015). Western Australia- Perth region and southwest region. Retrieved from: https://www.google.com.au/maps/@-32.6080802,115.4925419,8.6z?hl=en

Graham, K., Scott, J., Binns, C., & Oddy, W. (2005). National targets for breastfeeding at hospital discharge have been achieved in Perth. *Acta Paediatrica, 94*(3), 352-356. doi: 10.1186/1746-4358-1-28

Gram, C. (1884). The Differential Staining of Schizomycetes in Tissue Sections and in Dried Preparations. *Fortschritte der Medicin. 2*, 185-189.

Griffin, Julian L, Anthony, Daniel C, Campbell, Sandra J, Gauldie, Jack, Pitossi, Fernando, Styles, Peter, & Sibson, Nicola R. (2004). Study of cytokine induced neuropathology by high resolution proton NMR spectroscopy of rat urine. *FEBS Letters, 568*(1), 49-54. doi: 10.1016/j.febslet.2004.04.096

Grote, V., Verduci, E., Scaglioni, S., Vecchi, F., Contarini, G., Giovannini, M., Koletzko, B. & Agostoni, C. (2015). Breast milk composition and infant nutrient intakes during the first 12 months of life. *European Journal of Clinical Nutrition*, 1-7. doi: 10.1038/ejcn.2015.162

Gullberg, J., Jonsson, P., Nordström, A., Sjöström, M. & Moritz, T. (2004). Design of experiments: An efficient strategy to identify factors influencing extraction and derivatization of Arabidopsis thaliana samples in metabolomic studies with gas chromatography/mass spectrometry. *Analytical Biochemistry, 331*(2), 283-295. doi: 10.1016/j.ab.2004.04.037

Gummer, J., Krill, C., Du Fall, L., Waters, O., Trengove, R., Oliver, R. & Solomon, P. (2012). Metabolomics Protocols for Filamentous Fungi. Plant Fungal Pathogens. M. D. Bolton and B. P. H. J. Thomma, Humana Press. 835: 237-254. doi: 1 0.1007/978-1-61779-501-5_15

Gummer, J., Trengove, R., Oliver, R., & Solomon, P. (2013). Dissecting the role of G-protein signalling in primary metabolism in the wheat pathogen Stagonospora nodorum. *Microbiology, 159* (9), 1972-85. doi: 10.1099/mic.0.067009-0

Hale, T., & Hartmann, Peter. (2007). *Hale & Hartmann's textbook of human lactation (1st ed.)*. Amarillo, Texas: Hale Publishing.

Hale, T., Bateman, T., Finkelman, M., & Berens, P. (2009). The absence of Candida albicans in milk samples of women with clinical symptoms of ductal candidiasis. *Breastfeeding Medicine : The Official Journal of the Academy of Breastfeeding Medicine, 4*(2), 57-61. doi: 10.1089/bfm.2008.0144

Hartmann, B., Pang, W., Keil, A. & Simmer, K. (2007). Best practice guidelines for the operation of a donor human milk bank in an Australia NICU. *Early Human Development*, *83*(1), 667-673. doi: 10.1016/j.earlhumdev.2007.07.012

Hassiotou, F. & Geddes, D. (2013). Anatomy of the human mammary gland: Current status of knowledge. *Clinical Anatomy, 26*(1), 29-48. doi: 10.1002/ca.22165

Hassiotou, F., Hepworth, A., Williams, T., Twigger, A., Perrella, S., Lai, C., Filgueira, L., Geddes, D. & Hartmann, P. (2013). Breastmilk Cell and Fat Contents Respond Similarly to Removal of Breastmilk by the Infant. *PLoS One, 8*(11). doi: 10.1371/journal.pone.0078232

Hassiotou, F., Hepworth, A., Metzger, P., Tat Lai, C., Trengove, N., Hartmann, P. & Filgueira, L. (2013). Maternal and infant infections stimulate a rapid leukocyte response in breastmilk. *Clinical & Translational Immunology, 2*(4), E3. doi: 10.1038/cti.2013.1

Heikkila, M. & Saris, P. (2003). Inhibition of *Staphylococcus aureus* by the commensal bacteria of human milk. *Journal of Applied Microbiology, 95*(3), 471-478. doi: 10.1046/j.1365-2672.2003.02002.x

Hogeveen, H., Huijps, K. & Lam, T. (2011). Economic aspects of mastitis: new developments. *New Zealand Veterinary Journal*, *59*(1), 16-23. doi: 10.1080/00480169.2011.547165

Holmen, O. & Bache, B. (2009). An undiagnosed cause of nipple pain presented on a camera phone. *British Medical Journal*, *339*(631-632). doi: http://dx.doi.org/10.1136/bmj.b2553

Hothorn, T., Bretz, F., & Westfall, P. (2008). Simultaneous Inference in General Parametric Models. *Biometrical Journal, 50*(3), 346-363. doi: 10.1002/bimj.200810425

Hsu, Y., Chen, C., Lin, M., Tsai, C., Liang, J. & Wang, T. (2014). Changes in Preterm Breast Milk Nutrient Content in the First Month. *Pediatrics & Neonatology, 55*(6), 449-454. doi: 10.1016/j.pedneo.2014.03.002

Hubschmann, H. (2008). Handbook of GC/MS Fundamentals and Applications. Germany: Wiley.

Hugenholtz, P. (2002). Exploring prokaryotic diversity in the genomic era. *Genome Biology, 3*(2). Retrieved from http://genomebiology.com/2002/3/2/reviews/0003.1

Ianni, F., Sardella, R., Lisanti, A., Gioiello, A., Cenci Goga, B., Lindner, W. & Natalini, B. (2014). Achiral–chiral two-dimensional chromatography of free amino acids in milk: A promising tool for detecting different levels of mastitis in cows. *Journal of Pharmaceutical and Biomedical Analysis, 116*, 40-46. doi: 10.1016/j.jpba.2014.12.041

Ip, S., Chung, M., Raman, G., Trikalinos, T., & Lau, J. (2009). A summary of the Agency for Healthcare Research and Quality's evidence report on breastfeeding in developed countries. *Breastfeeding Medicine: The Official Journal of the Academy of Breastfeeding Medicine, 4*(1), S17-30. doi: 10.1089/bfm.2009.0050

Jahanfar, S., Ng., C. & Teng, C. (2013). Antibiotics for mastitis in breastfeeding women. *The Cochrane Database of Systemic Reviews, 2*(1), 1-27. doi: 10.1002/14651858.CD005458.pub3

Jensen, R. (1995). *Handbook of Milk Composition* (Food Science and Technology). Burlington: Elsevier Science.

Karlson, E., Mandl, L., Hankinson, S., & Grodstein, F. (2004). Do breast-feeding and other reproductive factors influence future risk of rheumatoid arthritis? Results from the Nurses' Health Study. *Arthritis and Rheumatism, 50*(11), 3458-67. doi: 10.1002/art.20621

Kirwan, J., Broadhurst, A., Davidson, D., & Viant, I. (2013). Characterising and correcting batch variation in an automated direct infusion mass spectrometry (DIMS) metabolomics workflow. *Analytical and Bioanalytical Chemistry, 405*(15), 5147-5157. doi: 10.1007/s00216-013-6856-7

Kitson, F., Larsen, B. & McEwen, C. (1996). *Gas Chromatography Mass Spectrometry a Practical Guide*. Burlington, Elevier.

Koek, M., Muilwijk, B., vander Werf, M., & Hankemeier, T. (2006). Microbial metabolomics with gas chromatography/mass spectrometry. *Analytical Chemistry, 78*(4), 1272–1281. doi: 10.1021/ac050980b

Koek, M., Jellema, M., Greef, R., Tas, H., & Hankemeier, J. (2011). Quantitative metabolomics based on gas chromatography mass spectrometry: Status and perspectives. *Metabolomics, 7*(3), 307-328. doi: 10.1007/s11306-010-0254-3

Kvist, L., Larsson, B., Hall-Lord, M., Steen, A., & Schalen, C. (2008). The role of bacteria in lactational mastitis and some considerations of the use of antibiotic treatment. *International Breastfeeding Journal, 3*(6), 6-13. doi: 10.1186/1746-4358-3-6

Lande, B., Andersen, L., Bærug, A., Trygg, K., Lund‐Larsen, K., Veierød, M., & Bjørneboe, G. (2003). Infant feeding practices and associated factors in the first six months of life: The Norwegian Infant Nutrition Survey. *Acta Pædiatrica, 92*(2), 152-161. doi: 10.1111/j.1651-2227.2003.tb00519.x

Lenth, R. V. (2009). Java Applets for Power and Sample Size [Computer software]. Retrieved from http://www.stat.uiowa.edu/~rlenth/Power.

Love, S. & Barsky, S. (2004). Anatomy of the nipple and breast ducts revisited. *Cancer, 101*(9), 1947-1957. doi: 10.1002/cncr.20559

Linzell, J. & Peaker, M. (1971). The permeability of mammary ducts. *Journal of physiology, 216* (3), 701-716.

Marchesi, J., Holmes, E., Khan, F., Kochhar, S., Scanlan, P., Shanahan, F., Wilson, I. & Wang, Y. (2007). Rapid and noninvasive metabonomic characterization of inflammatory bowel disease. *Journal of Proteome Research, 6*(2), 546-51. doi: 10.1021/pr060470d

McClellan, H., Geddes, D., Kent, J., Mitoulas, L. & Hartmann, P. (2008). Infants of mothers with persistent nipple pain exert strong sucking vacuums. *Acta Paediatrica*, *97*(9), 1205-1209. doi: 10.1111/j.1651-2227.2008.00882.x

McClellan, K., Hepworth, A., Garbin, C., Rowan, M., Deacon, J., Hartmann, P. & Geddes, T. (2012). Nipple pain during breastfeeding with or without visible trauma. *Journal of Human Lactation*, *28*(4), 511-521. doi: 10.1177/0890334412444464

McCrory, C., & Layte, R. (2012). Breastfeeding and risk of overweight and obesity at nine-years of age. Social Science & Medicine, 75(2), 323-330. doi:10.1016/j.socscimed.2012.02.048

McManaman, J. & Neville, M. (2003). Mammary physiology and milk secretion. *Advanced Drug Delivery Reviews, 55*(5), 629-641.

Michaelsen, K. F., Lauritzen, L. L., Mortensen, E. H., & Jørgensen, M. (2003). Breast-feeding and brain development. *Scandinavian Journal of Nutrition, 47*(3), 147-151. doi: http://dx.doi.org/10.1080/11026480310005180

Michie, C., Lockie, F. & Lynn, W. (2003). The challenge of mastitis. *Archives of disease in Childhood*, *88*(9), 818-821. doi: 10.1136/adc.88.9.818

Mitoulas, L., Kent, J., Cox, D., Owens, R., Sherriff, J., & Hartmann, P. (2002). Variation in fat, lactose and protein in human milk over 24 h and throughout the first year of lactation. *The British Journal of Nutrition, 88*(1), 29-37. doi: 10.1079/BJN2002579

Moco, S., Collino, S., Rezzi, S. & Martin, F. (2013). Metabolomics perspectives in pediatric research. *Pediatric Research*, *73*(4), 570-576. doi: 10.1038/pr.2013.1

National Health and Medical Research Council. (2012). Infant feeding guidelines. *National Institute of Clinical Studies- Public Consultation Report*. Retrieved from https://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/n56_infant_feeding_guidelines_150917.pdf

National Mastitis council. (2012). Interpreting bacteriological culture results to diagnose bovine intramammary infections. Retrieved from http://nmconline.org/docs/InterpretBactResults.pdf

Newburg, D. (2005). Innate immunity and human milk. *The Journal of Nutrition, 135*(5), 1308-1312. Retrieved from: http://search.proquest.com.ezproxy.library.uwa.edu.au/docview/197468227/abstract?accountid=14681

Nommsen, L., Lovelady, C., Heinig, M., Lonnerdal, B. & Dewey, K. (1991). Determinants of energy, protein, lipid, and lactose concentrations in human milk during the first 12 months of lactation: The DARLING Study. (Davis Area Research on Lactation, Infant Nutrition and Growth). *American Journal of Clinical Nutrition, 53*(2), 457.

Page, T., Lockwood, C. & Guest, K. (2009) Management of nipple pain and/or trauma associated with breastfeeding. *Australian nursing journal*, *17*(2), 32-35. doi: 10.1046/j.1479-697x.2003.00004.x

Pang, W. & Hartmann. (2007). Initiation of human lactation: secretory differentiation and secretory activation. *Journal of Mammary Gland Biology and Neoplasia, 12*(4), 211-221.

Pinheiro, J., Bates, C.J., DebRoy, S. & Sarkar, D. (2011). R Development Core team. NLME: Linear and Nonlinear Mixed Effects Models. R package version 3.1–102. R Development Core Team: Vienna, Austria. http://CRAN.R-project.org/package=nlme.

Prentice, A., & Whitehead, R. (1981). Breast-milk fat concentrations of rural African women. *British Journal of Nutrition, 45*(3), 483-494.

Quinn, E., Largado, F., Power, M. & Kuzawa, C. (2012). Predictors of breast milk macronutrient composition in filipino mothers. American Journal of Human Biology, 24(4), 533-40. doi: 10.1002/ajhb.22266

R Development Core Team. (2011). R: A Language and Environment for Statistical Computing; R Development Core Team: Vienna, Austria.

Ramsay, D., Kent, J., Hartmann, R., & Hartmann, P. (2005). Anatomy of the lactating human breast redefined with ultrasound imaging. *Journal Of Anatomy,206*(6), 525-534. doi: 10.1111/j.1469-7580.2005.00417.x

Rowan, M., Deacon, J., Garbin, C., McClellan, H., Watson, M., Fenton, J., Geddes, D., Lai, C. & Hartmann, P. (2008). *Staphylococcus aureus* on sore nipples – is it the causative organism? *14th International Conference of the International Society for Research in Human Milk and Lactation (ISRHML). January 31st – February 5th, 2008, The University Club, Crawley, Western Australia, Australia*.

Schwartz, K., D'Arcy, H., Gillespie, B., Bobo, J., Longeway, M., & Foxman, B. (2002). Factors associated with weaning in the first 3 months postpartum. *Journal of Family Practice, 51*(5), 439. Retrieved from http://web.b.ebscohost.com.ezproxy.library.uwa.edu.au/ehost/pdfviewer/pdfviewer?sid=ed17b4f1-d2ad-463a-b360-5c7e299ebfeb%40sessionmgr113&vid=2&hid=116

Schwarz, E., Brown, J., Creasman, J., Stuebe, A., McClure, C., Van Den Eeden, S., & Thom, D. (2010). Lactation and maternal risk of type 2 diabetes: A population-based study. *The American Journal of Medicine, 123*(9), 863-863. doi: 10.1016/j.amjmed.2010.03.016

Scott, J., Binns, C., Oddy, W. & Graham, K. (2006). Predictors of breastfeeding duration: Evidence from a cohort study. *Pediatrics, 117*(4), 1404. doi: 10.1542/peds.2005-1991

Shennan, D., & Peaker, M. (2000). Transport of milk constituents by the mammary gland. *Physiological Reviews, 80*(3), 925-51.

Smolinska, A., Blanchet, L., Buydens, L. & Wijmenga, S. (2012). NMR and pattern recognition methods in metabolomics: From data acquisition to biomarker discovery: A review. *Analytica Chimica Acta*, *750*(1), 82-97. doi: 10.1016/j.aca.2012.05.049

Strathearn, L., Mamun, A., Najman, J., & O'Callaghan, M. (2009). Does breastfeeding protect against substantiated child abuse and neglect? A 15-year cohort study. *Pediatrics, 123*(2), 483-93. doi: 10.1542/peds.2007-3546

Sundekilde, U., Poulsen, N., Larsen, L. & Bertram, H. (2013). Nuclear magnetic resonance metabonomics reveals strong association between milk metabolites and somatic cell count in bovine milk. *Journal of Dairy Science*, *96*(1), 290-299. doi: 10.3168/jds.2012-5819

Tait, P. (2000). Nipple pain in breastfeeding women: causes, treatment, and prevention strategies. *Journal of Midwifery and Women's Health*, *45*(3), 212-215. doi: 10.1016/S1526-9523(00)00011-8

Thomas, E., Williams, T. and Hartmann, P. (2010). Lactation and mother's milk: recent advances in understanding. Infant, 6 (3), 86-90.

Thomsen, A., Hansen, K. & Moller, B. (1983). Leukocyte counts and microbiologic cultivation in the diagnosis of puerperal mastitis. *American Journal of Obstetrics and Gynecology, 146*(8), 938-941. Retrieved from http://europepmc.org/abstract.

Veselkov, K., Vingara, L., Masson, P., Robinette, S., Want, E., Li, J., Barton, R., Boursier-Neyret, C., Walther, B., Ebbles, T., Pelczer, I., Holmes, E., Lindon, J. &Nicholson, J. (2011). Optimized preprocessing of ultra-performance liquid chromatography/mass spectrometry urinary metabolic profiles for improved information recovery. *Analytical Chemistry, 83*(15), 5864-5872. doi: 10.1021/ac201065j

Walker, A. (2010). Breast milk as the golden standard for protective nutrients. *The Journal of Pediatrics, 152* (2), 3-7. doi: 10.1016/j.jpeds.2009.11.021

WHO .(1985). World Health Organization Collaborative Study of Breastfeeding: The Quantity and quality of breast milk: Report on the WHO Collaborative Study of Breastfeeding. World Health Organisation Geneva, Switzerland.

WHO. (2003). Global strategy for infant and young child feeding. World Health Organisation Geneva, Switzerland.

Win, N., Binns, C., Zhao, Y., Scott, J. and Oddy, W. (2006). Breastfeeding duration in mothers who express breast milk: A cohort study. *International Breastfeeding Journal*, *1*, 28-32. doi: 10.1186/1746-4358-1-28

Wojcik, K., Rechtman, D., Lee, M., Montoya, A. & Medo, E. (2009). Macronutrient analysis of a nationwide sample of donor breast milk. *Journal Of The American Dietetic Association, 109*(1), 137-140. doi: 10.1016/j.jada.2008.10.008

Zhai, G., Wang-Sattler, R., Hart, D., Arden, N., Hakim, A., Illig, T., & Spector, T. (2010). Serum branched-chain amino acid to histidine ratio: A novel metabolomic biomarker of knee osteoarthritis. *Annals of the Rheumatic Diseases, 69*(6), 1227. doi: 10.1136/ard.2009.120857

Zhang, Q., Wang, G., Du, Y., Zhu, L., & A, J. (2007). GC/MS analysis of the rat urine for metabonomic research. *Journal of Chromatography B, 854*(1), 20-25. doi: 10.1016/j.jchromb.2007.03.048

Ziebuhr, W., Hennig, S., Eckart, M., Kranzler, H., Batzilla, C. & Kozitskaya, S. (2006). Nosocomial infections by Staphylococcus epidermis: how a commensal bacterium turns into a pathogen. *International Journal of Antimicrobial Agents, 28*, 14-20. doi:10.1016/j.ijantimicag.2006.05.012