

Autism Research Institute References – June 2008

Autism and the Gastrointestinal System

- Afzal N, Murch S, Thirrupathy K, Berger L, Fagbemi A, Heuschkel R. Constipation with acquired megarectum in children with autism. *Pediatrics*. 2003 Oct;112(4):939-42.
- Ashwood P et al. Intestinal lymphocyte populations in children with regressive autism: evidence for extensive mucosal immunopathology. *J Clin Immunol*. 2003 Nov;23(6):504-17. PMID: 15031638.
- Ashwood P, Wakefield AJ. Immune activation of peripheral blood and mucosal CD3+ lymphocyte cytokine profiles in children with autism and gastrointestinal symptoms. *J Neuroimmunol*. 2006 Apr;173(1-2):126-34.
- Balzola F, Barbon V, Repici A, Rizzetto M. Panenteric IBD-like disease in a patient with regressive autism shown for the first time by the wireless capsule enteroscopy: another piece in the jigsaw of this gut-brain syndrome? *Am J Gastro*. 2005; 979-981.
- Balzola F, Daniela C, Repici A, Barbon V, Sapino A, Barbera C, Calvo PL, Gandione M, Rigardetto R, Rizzetto M. Autistic enterocolitis: confirmation of a new inflammatory bowel disease in an Italian cohort of patients. *Gastroenterology*. 2005;128:Suppl.2;A-303.
- Balzola F, et al. Autistic Enterocolitis in childhood: the early evidence of the later Crohn's disease in autistic adulthood? *Gastroenterology* April 2007 Vol 132, N. 4, suppl 2 W 1100 A 660
- Balzola F, et al. Beneficial behavioural effects of IBD therapy and gluten/casein-free diet in an Italian cohort of patients with autistic enterocolitis followed over one year. *Gastroenterology*, April 2006 Vol 130 Number 4 suppl. 2 S1364 A-21.
- Biller JA, Katz AJ, Flores AF, Buie TM, Gorbach SL. Treatment of recurrent Clostridium difficile colitis with Lactobacillus GG. *J Pediatr Gastroenterol Nutr*. 1995 Aug;21(2):224-6.
- Black C, Kaye JA, Jick H. Relation of childhood gastrointestinal disorders to autism: nested case-control study using data from the UK General Practice Research Database. *BMJ*. 2002 Aug 24;325(7361):419-21.
- Binstock T. Intra-monocyte pathogens delineate autism subgroups. *Med Hypotheses*. 2001 Apr;56(4):523-31.
- Binstock T. Anterior insular cortex: linking intestinal pathology and brain function in autism-spectrum subgroups. *Med Hypotheses* 2001 57(6):714-7.
- Bousvaros A, et al; and the Members of the Challenges in Pediatric IBD Study Groups. Challenges in pediatric inflammatory bowel disease. *Inflamm Bowel Dis*. 2006 Sep;12(9):885-913.
- Buchman AL, Fife C, Torres C, Smith L, Aristizabal J. Hyperbaric oxygen therapy for severe ulcerative colitis. *J Clin Gastroenterol*. 2001 Oct;33(4):337-9.
- Buts JP, De Keyser N. Effects of Saccharomyces boulardii on intestinal mucosa. *Dig Dis Sci*. 2006 Aug;51(8):1485-92.
- Cade R, Privette M, Fregly M, Rowland N, Sun Z, Zele V, Wagemaker H, Edlestein C: Autism and schizophrenia: intestinal disorders. *Nutritional Neuroscience* 3: 57-72, 2000.
- Cade JR et al: Autism and schizophrenia linked to malfunctioning enzyme for milk protein digestion. *Autism*, Mar 1999.
- DeFelice ML, Ruchelli ED et al. Intestinal cytokines in children with pervasive developmental disorders. *Am J Gastroenterol* 98(8): 1777-82: 2003.
- D'Eufemia P, Celli M, Finocchiaro R, Pacifico L, Viozzi L, Zaccagnini M, Cardi E, Giardini O. Abnormal intestinal permeability in children with autism. *Acta Paediatr*. 1996 Sep;85(9):1076-9.
- Fedorak RN, Madsen KL. Probiotics and the management of inflammatory bowel disease. *Inflamm Bowel Dis*. 2004 May;10(3):286-99.
- Forsberg G et al. Presence of bacteria and innate immunity of intestinal epithelium in childhood celiac disease. *Am J Gastroenterol*. 2004 May;99(5):894-904.
- Furlano RI et al. Colonic CD8 and gamma delta T-cell infiltration with epithelial damage in children with autism. *J Pediatr*. 2001 Mar;138(3):366-72.
- Gonzalez L, Lopez K, Navarro D, Negron L, Flores L, Rodriguez R, Martinez M, Sabra A. Endoscopic and Histological Characteristics of the digestive mucosa in autistic children with gastrointestinal symptoms. *Arch Venez Pueric Pediatr* 69;1:19-25.
- Gottschall, Elaine G. Breaking the Vicious Cycle: Intestinal Health Through Diet. Ontario: Kirkton Press. 1994.
- Hadjivassiliou M et al. Does cryptic gluten sensitivity play a part in neurological illness? *Lancet*. 1996 Feb 10;347(8998):369-71.
- Haskey N, Dahl WJ. Synbiotic therapy: a promising new adjunctive therapy for ulcerative colitis. *Nutr Rev*. 2006 Mar;64(3):132-8.
- Hassall E. Decisions in diagnosing and managing chronic gastroesophageal reflux disease in children. *J Pediatr*. 2005 Mar;146(3 Suppl):S3-12.
- Homan M, Baldassano RN, Mamula P. Managing complicated Crohn's disease in children and adolescents. *Nat Clin Pract Gastroenterol Hepatol*. 2005 Dec;2(12):572-9.
- Horvath K et al. Gastrointestinal abnormalities in children with autistic disorder. *J Pediatr*. 1999 Nov;135(5):559-63.

- Horvath K, Perman JA. Autism and gastrointestinal symptoms. *Curr Gastroenterol Rep*. 2002 Jun;4(3):251-8. PMID: 12010627
- Horvath K, Perman JA. Autistic disorder and gastrointestinal disease. *Curr Opin Pediatr*. 2002 Oct;14(5):583-7.
- Isolauri E, Juntunen M, Rautanen T, Sillanaukee P, Koivula T. A human Lactobacillus strain (Lactobacillus casei sp strain GG) promotes recovery from acute diarrhea in children. *Pediatrics*. 1991 Jul;88(1):90-7.
- Iacono G et al. Intolerance of cow's milk and chronic constipation in children. *N Engl J Med*. 1998 Oct 15;339(16):1100-4.
- Işeri SO, Sener G, Sağlam B, Gedik N, Ercan F, Yeğen BC. Oxytocin ameliorates oxidative colonic inflammation by a neutrophil-dependent mechanism. *Peptides*. 2005 Mar;26(3):483-91.
- Kawashima H et al. Detection and sequencing of measles virus from peripheral mononuclear cells from patients with inflammatory bowel disease and autism. *Dig Dis Sci*. 2000 Apr;45(4):723-9.
- Kruis W. Antibiotics and probiotics in inflammatory bowel disease. *Aliment Pharmacol Ther*. 2004 Oct;20 Suppl 4:75-8.
- Kuddo T, Nelson KB. How common are gastrointestinal disorders in children with autism. *Curr Opin Pediatr* 2003; 15(3); 339-343.
- Kushak R, Winter H, Farber N, Buie T. Gastrointestinal symptoms and intestinal disaccharidase activities in children with autism. Abstract of presentation to the North American Society of Pediatric Gastroenterology, Hepatology, and Nutrition, Annual Meeting, October 20-22, 2005, Salt Lake City, Utah.
- Levy S, Souders MC, Wray J, Jawad AF, Gallagher PR, Coplan J, Belchic JK, Gerdes M, Mitchell R, Mulberg AE. Children with autistic spectrum disorders. I: Comparison of placebo and single dose of human synthetic secretin. *Arch. Dis. Child*. 2003;88;731-736.
- Lewis JD, et al. An open-label trial of the PPAR-gamma ligand rosiglitazone for active ulcerative colitis. *Am J Gastroenterol*. 2001 Dec;96(12):3323-8.
- Liu Z, Li N, Neu J. Tight junctions, leaky intestines, and pediatric diseases. *Acta Paediatr*. 2005 Apr;94(4):386-93.
- Macdonald A. Omega-3 fatty acids as adjunctive therapy in Crohn's disease. *Gastroenterol Nurs*. 2006 Jul-Aug;29(4):295-301.
- Melmed RD, Schneider CK, Fabes RA. Metabolic markers and gastrointestinal symptoms in children with autism and related disorders. *J Pediatr Gastroenterol Nutr* 2000;31(suppl 2):S31-32.
- Parracho HM, Bingham MO, Gibson GR, McCartney AL. Differences between the gut microflora of children with autistic spectrum disorders and that of healthy children. *J Med Microbiol*. 2005 Oct;54(Pt 10):987-91.
- Quigley EM, Hurley D. Autism and the gastrointestinal tract. *Am J Gastroenterol*. 2000 Sep;95(9):2154-6. PMID: 11007210
- Reichelt KL, Knivsberg AM. Can the pathophysiology of autism be explained by the nature of the discovered urine peptides? *Nutr Neurosci*. 2003 Feb;6(1):19-28.
- Reichelt KL, Knivsberg AM, Lind G, Nodland M: Probable Etiology and Possible Treatment of Childhood Autism. *Brain Dysfunction* 1991; 4: 308-319.
- Romano C, Cucchiara S, Barabino A, Annese V, Sferlazzas C. Usefulness of omega-3 fatty acid supplementation in addition to mesalazine in maintaining remission in pediatric Crohn's disease: a double-blind, randomized, placebo-controlled study. *World J Gastroenterol*. 2005 Dec 7;11(45):7118-21.
- Sandler RH, Finegold SM, Bolte ER, Buchanan CP, Maxwell AP, Vaisanen ML, Nelson MN, Wexler HM. Short-term benefit from oral vancomycin treatment of regressive-onset autism. *J Child Neurol*. 2000 Jul;15(7):429-35.
- Schneider CK, Melmed RD, Barstow LE, Enriquez FJ, Ranger-Moore J, Ostrem JA. Oral Human Immunoglobulin for Children with Autism and Gastrointestinal Dysfunction: A Prospective, Open-Label Study. *J Autism Dev Disord*. 2006 Jul 15.
- Sido B, Hack V, Hochlehnert A, Lipps H, Herfarth C, Droge W. Impairment of intestinal glutathione synthesis in patients with inflammatory bowel disease. *Gut*. 1998 Apr;42(4):485-92.
- Song Y, Liu C, Finegold SM. Real-time PCR quantitation of clostridia in feces of autistic children. *Appl Environ Microbiol*. 2004 Nov;70(11):6459-65.
- Sougioultzis S, et al. Saccharomyces boulardii produces a soluble anti-inflammatory factor that inhibits NF-kappaB-mediated IL-8 gene expression. *Biochem Biophys Res Commun*. 2006 Apr 28;343(1):69-76.
- Taylor B, Miller E, Lingam R, Andrews N, Simmons A, Stowe J. Measles, mumps, and rubella vaccination and bowel problems or developmental regression in children with autism: population study. *BMJ*. 2002 Feb 16;324(7334):393-6.
- Torrente F, Anthony A. Focal-enhanced gastritis in regressive autism with features distinct from Crohn's disease and helicobacter Pylori gastritis. *Am J Gastroenterol* 2004 Apr;99(4):598-605.
- Torrente F et al. Small intestinal enteropathy with epithelial IgG and complement deposition in children with regressive autism. *Mol Psychiatry*. 2002;7(4):375-82, 334.
- Uhlmann V et al. Potential viral pathogenic mechanism for new variant inflammatory bowel disease. *Mol Pathol*. 2002 Apr;55(2):84-90.
- Valicenti-McDermott M, McVicar K, Rapin I, Wershil BK, Cohen H, Shinnar S. Frequency of gastrointestinal symptoms in children with autistic spectrum disorders and association with family history of autoimmune disease. *J Dev Behav Pediatr*. 2006 Apr;27(2 Suppl):S128-36.
- Wakefield AJ, Ashwood P, Limb K, Anthony A. The significance of ileo-colonic lymphoid nodular hyperplasia in children with autistic spectrum disorder. *Eur J Gastroenterol Hepatol*. 2005 Aug;17(8):827-36.
- Wakefield AJ et al. Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children. *Lancet*. 1998 28;351(9103):637-41.
- Wakefield AJ. Enterocolitis, autism and measles virus. *Mol Psychiatry*. 2002;7 Suppl 2:S44-6.
- Wakefield AJ. The gut-brain axis in childhood developmental disorders. *J Pediatr Gastroenterol Nutr*. 2002 May-Jun;34 Suppl 1:S14-7.
- Wakefield AJ et al. Review article: the concept of entero-colonic encephalopathy, autism and opioid receptor ligands. *Aliment Pharmacol Ther* 2002 16(4):663-74.
- Wakefield AJ et al. Enterocolitis in children with developmental disorders. *Am J Gastroenterol*. 2000 Sep;95(9):2285-95.

- Wakefield AJ, Montgomery SM. Autism, viral infection and measles-mumps-rubella vaccination. *Isr Med Assoc J*. 1999 Nov;1(3):183-7.
- Wakefield AJ. MMR vaccination and autism. *Lancet*. 1999 Sep 11;354(9182):949-50.
- Waring RH, Klovrcza LV. Sulphur metabolism in autism. *J Nutr Env Med*. 2000;10,25-32.
- Welch MG, Welch-Horan TB, Anwar M, Anwar N, Ludwig RJ, Ruggiero DA. Brain effects of chronic IBD in areas abnormal in autism and treatment by single neuropeptides secretin and oxytocin. *J Mol Neurosci* 2005; 25(3):259-74.
- Working Group of the Japanese Society for Pediatric Gastroenterology, Hepatology and Nutrition; Konno M, et al. Guidelines for the treatment of Crohn's disease in children. *Pediatr Int*. 2006 Jun;48(3):349-52.

Nutritional Deficiencies & Diet

- Adams JB, Holloway C. Pilot study of a moderate dose multivitamin/mineral supplement for children with autistic spectrum disorder. *J Altern Complement Med*. 2004 Dec;10(6):1033-9.
- Adams JB, George F, Audhya T. Abnormally high plasma levels of vitamin B6 in children with autism not taking supplements compared to controls not taking supplements. *J Altern Complement Med*. 2006 Jan-Feb;12(1):59-63.
- Aldred S, Moore KM, Fitzgerald M, Waring RH. Plasma amino acid levels in children with autism and their families. *J Autism Dev Disord*. 2003 Feb;33(1):93-7.
- Amminger GP, Berger GE, Schafer MR, Klier C, Friedrich MH, Feucht M. Omega-3 Fatty Acids Supplementation in Children with Autism: A Double-blind Randomized, Placebo-controlled Pilot Study. *Biol Psychiatry*. 2006 Aug 22; [Epub ahead of print].
- Andersen IM, Kaczmarek J, McGrew SG, Malow BA. Melatonin for Insomnia in Children With Autism Spectrum Disorders. *J Child Neurol*. 2008 Jan 8.
- Arnold GL et al. Plasma amino acids profiles in children with autism: potential risk of nutritional deficiencies. *J Autism Dev Disord* 2003 33(4):449-54.
- Ashkenazi A, Levin S, Krasilowsky D. Gluten and autism. *Lancet*. 1980 Jan 19;1(8160):157.
- Baker SB, Worthley LI. The essentials of calcium, magnesium and phosphate metabolism: part I. Physiology. *Crit Care Resusc*. 2002 Dec;4(4):301-6.
- Barthelemy C, et al. Biological and clinical effects of oral magnesium and associated magnesium-vitamin B6 administration on certain disorders observed in infantile autism. *Therapie*. 1980 Sep-Oct;35(5):627-32.
- Bell JG, Sargent JR, Tocher DR, Dick JR. Red blood cell fatty acid compositions in a patient with autistic spectrum disorder: a characteristic abnormality in neurodevelopmental disorders? *Prostaglandins Leukot Essent Fatty Acids*. 2000 Jul-Aug;63(1-2):21-5.
- Bu B, Ashwood P, Harvey D, King IB, Water JV, Jin LW. Fatty acid compositions of red blood cell phospholipids in children with autism. *Prostaglandins Leukot Essent Fatty Acids*. 2006 Apr;74(4):215-21.
- Carlton R et al. Rational dosages of nutrients have a prolonged effect on learning disabilities. *Alternative Therapies* 2000; 6:85-91.
- Chez MG, Buchanan CP, Aimonovitch MC, Becker M, Schaefer K, Black C, Komen J. Double-blind, placebo-controlled study of L-carnosine supplementation in children with autistic spectrum disorders. *J Child Neurol*. 2002 Nov;17(11):833-7.
- Chugani DC, Sundram BS, Behen M, Lee ML, Moore GJ. Evidence of altered energy metabolism in autistic children. *Prog Neuropsychopharmacol Biol Psychiatry*. 1999 May;23(4):635-41.
- Christison GW, Ivany K. Elimination diets in autism spectrum disorders: any wheat amidst the chaff? *J Dev Behav Pediatr*. 2006 Apr;27(2 Suppl):S162-71. Dolske MC, Spollen J, McKay S, Lancashire E, Tolbert L. A preliminary trial of ascorbic acid as supplemental therapy for autism. *Prog Neuropsychopharmacol Biol Psychiatry*. 1993 Sep;17(5):765-74.
- Dufour F et al. Modulation of absence seizures by branched-chain amino acids: correlation with brain amino acid concentrations. *Neurosci Res*. 2001 Jul;40(3):255-63. PMID: 11448517
- El Idrissi A et al. Prevention of epileptic seizures by taurine. *Adv Exp Med Biol*. 2003;526:515-25. PMID: 12908638
- Erdeve O et al. The probiotic effect of *Saccharomyces boulardii* in a pediatric age group. *J Trop Pediatr*. 2004 Aug;50(4):234-6. Fernstrom JD. Can nutrient supplements modify brain function? *Am J Clin Nutr*. 2000 Jun;71(6 Suppl):1669S-75S.
- Filipek PA, Juranek J, Nguyen MT, Cummings C, Gargus JJ. Relative carnitine deficiency in autism. *J Autism Dev Disord*. 2004 Dec;34(6):615-23.
- Finegold SM et al. Gastrointestinal microflora studies in late-onset autism. *Clin Infect Dis* 2002 35(Suppl 1):S6-S16
- Grattan-Smith PJ, Wilcken B, Procopis PG, Wise GA. The neurological syndrome of infantile cobalamin deficiency: developmental regression and involuntary movements. *Mov Disord*. 1997 Jan;12(1):39-46.
- Herbert V. Detection of malabsorption of vitamin B12 due to gastric or intestinal dysfunction. *Semin Nucl Med*. 1972 Jul;2(3):220-34.
- Jonas C, Etienne T, Barthelemy C, Jouve J, Mariotte N. Clinical and biochemical value of Magnesium + vitamin B6 combination in the treatment of residual autism in adults. *Therapie*. 1984 Nov-Dec;39(6):661-9.
- Jory J, McGinnis WR. Red-Cell Trace Minerals in Children with Autism. *Am J Biochem Biotechnol*. 4(2): 101-104, 2008.
- Kleijnen J, Knipschild P. Niacin and vitamin B6 in mental functioning: a review of controlled trials in humans. *Biol Psychiatry*. 1991 May 1;29(9):931-41.
- Knivsberg AM, Reichelt KL, Høien T, Nodland M. A randomised, controlled study of dietary intervention in autistic syndromes. *Nutr Neurosci*. 2002 Sep;5(4):251-61.
- Knivsberg AM et al. Reports on dietary intervention in autistic disorders. *Nutr Neurosci*. 2001;4(1):25-37.
- Kozielec T, Starobrat-Hermelin B. Assessment of magnesium levels in children with attention deficit hyperactivity disorder (ADHD). *Magnes Res*. 1997 Jun;10(2):143-8.
- Lelord G, Muh JP, Barthelemy C, Martineau J, Garreau B, Callaway E. Effects of pyridoxine and magnesium on autistic symptoms—initial observations. *J Autism Dev Disord*. 1981 Jun;11(2):219-30.

- Lelord G, Callaway E, Muh JP. Clinical and biological effects of high doses of vitamin B6 and magnesium on autistic children. *Acta Vitaminol Enzymol.* 1982;4(1-2):27-44.
- Liebscher DH, Liebscher DE. About the misdiagnosis of magnesium deficiency. *J Am Coll Nutr.* 2004 Dec;23(6):730S-1S.
- Mahadik SP, Scheffer RE. Oxidative injury and potential use of antioxidants in schizizophrenia. *Prostaglandins Leukot Essent Fatty Acids.* 1996 Aug;55(1-2):45-54.
- Martineau J, Barthelemy C, Garreau B, Lelord G. Vitamin B6, magnesium, and combined B6-Mg: therapeutic effects in childhood autism. *Biol Psychiatry.* 1985 May;20(5):467-78.
- Megson MN. Is autism a G-alpha protein defect reversible with natural vitamin A? *Med Hypotheses.* 2000 Jun;54(6):979-83.
- Moretti R, Torre P, Antonello RM, Cattaruzza T, Cazzato G, Bava A. Vitamin B12 and folate depletion in cognition: a review. *Neurol India.* 2004 Sep;52(3):310-8.
- Mousain-Bosc M, Roche M, Polge A, Pradal-Prat D, Rapin J, Bali JP. Improvement of neurobehavioral disorders in children supplemented with magnesium-vitamin B6. II. Pervasive developmental disorder-autism. *Magnes Res.* 2006 Mar;19(1):53-62.
- Mousain-Bosc M, Roche M, Rapin J, Bali JP. Magnesium VitB6 intake reduces central nervous system hyperexcitability in children. *J Am Coll Nutr.* 2004 Oct;23(5):545S-548S.
- Murch SH, Walker-Smith JA. Nutrition in inflammatory bowel disease. *Baillieres Clin Gastroenterol.* 1998 Dec;12(4):719-38.
- Olmez A, Yalcin S, Yurdakok K, Coskun T. Serum selenium levels in acute gastroenteritis of possible viral origin. *J Trop Pediatr.* 2004 Apr;50(2):78-81.
- Pangborn J, Baker SM. Autism: Effective Biomedical Treatments (Have We Done Everything We Can For This Child? Individuality In An Epidemic). San Diego: Autism Research Institute; 2nd Edition Sept. 2005:232-235.
- Pfeiffer CC, Braverman ER. Zinc, the brain and behavior. *Biol Psychiatry.* 1982 Apr;17(4):513-32.
- Richardson AJ. Omega-3 fatty acids in ADHD and related neurodevelopmental disorders. *Int Rev Psychiatry.* 2006 Apr;18(2):155-72.
- Rimland B. High dosage levels of certain vitamins in the treatment of children with severe mental disorders. In D. Hawkins & L. Pauling (Eds.), *Orthomolecular Psychiatry.* 1973 (pp. 513-538).
- Rimland B. Vitamin B6 (and magnesium) in the treatment of autism. *Autism Research Review International*, 1987, Vol. 1, No. 4, page 3.
- Rimland B, Callaway E, Dreyfus P. The effect of high doses of vitamin B6 on autistic children: a double-blind crossover study. *Am J Psychiatry.* 1978 Apr;135(4):472-5.
- Sogut S, et al. Changes in nitric oxide levels and antioxidant enzyme activities may have a role in the pathophysiological mechanisms involved in autism. *Clin Chim Acta.* 2003 May;331(1-2):111-7.
- Starobrat-Hermelin B, Kozieliec T. The effects of magnesium physiological supplementation on hyperactivity in children with attention deficit hyperactivity disorder (ADHD). Positive response to magnesium oral loading test. *Magnes Res.* 1997 Jun;10(2):149-56.
- Tchantchou F, Graves M, Shea TB. Expression and activity of methionine cycle genes are altered following folate and vitamin E deficiency under oxidative challenge: modulation by apolipoprotein E-deficiency. *Nutr Neurosci.* 2006 Feb-Apr;9(1-2):17-24.
- Toskes PP, Hansell J, Cerda J, Deren JJ. Vitamin B 12 malabsorption in chronic pancreatic insufficiency. *N Engl J Med* 1971 Mar 25;284(12):627-32. PMID: 5547614
- Vancassel S, Durand G, Barthelemy C, Lejeune B, Martineau J, Guilloteau D, Andres C, Chalon S. Plasma fatty acid levels in autistic children. *Prostaglandins Leukot Essent Fatty Acids.* 2001 Jul;65(1):1-7.
- Van Gelder NM, Sherwin AL, Sacks C, Anderman F. Biochemical observations following administration of taurine to patients with epilepsy. *Brain Res.* 1975 Aug 29;94(2):297-306.
- Walsh WJ, Glab LB, Haakenson ML. Reduced violent behavior following biochemical therapy. *Physiol Behav.* 2004 Oct 15;82(5):835-9.
- Waring RH, Klovrcza LV. Sulphur metabolism in autism. *J Nutr Env Med.* 2000;10:25-35.
- White JF. Intestinal pathophysiology in autism. *Exp Biol Med (Maywood).* 2003 Jun;228(6):639-49.
- Whiteley P, Waring R, Williams L, Klovrcza L, Nolan F, Smith S, Farrow M, Dodou K, Lough WJ, Shattock P. Spot urinary creatinine excretion in pervasive developmental disorders. *Pediatr Int.* 2006 Jun;48(3):292-7.
- Young G, Conquer J. Omega-3 fatty acids and neuropsychiatric disorders. *Reprod Nutr Dev.* 2005 Jan-Feb;45(1):1-28.
- Zoroglu SS, et al. Pathophysiological role of nitric oxide and adrenomedullin in autism. *Cell Biochem Funct.* 2003 Mar;21(1):55-60.

Autism and Detoxification

- Adams JB, Romdalvik J, Ramanujam V.M.S., Legator MS, Mercury, Lead, and Zinc in Baby Teeth of Children with Autism vs. Controls. *J Toxicol Environ Health* 2007 70(12):1046-51.
- Alberti A, Pirrone P, Elia M, Waring RH, Romano C. Sulphation deficit in "low-functioning" autistic children: a pilot study. *Biol Psychiatry.* 1999 Aug 1;46(3):420-4.
- Aposhian HV, Maiorino RM, Dart RC, Perry DF. Urinary excretion of meso-2,3-dimercaptosuccinic acid in human subjects. *Clin Pharmacol Ther.* 1989 May;45(5):520-6
- Aremu DA, Madejczyk MS, Ballatori N. N-acetylcysteine as a potential antidote and biomonitoring agent of methylmercury exposure. *Environ Health Perspect.* 2008 Jan;116(1):26-31.
- Aschner M, Syversen T, Souza DO, Rocha JB. Metallothioneins: mercury species-specific induction and their potential role in attenuating neurotoxicity. *Exp Biol Med (Maywood).* 2006 Oct;231(9):1468-73.
- Aw TY, Wierzbicka G, Jones DP. Oral glutathione increases tissue glutathione in vivo. *Chem Biol Interact.* 1991;80(1):89-97.
- Aw TY. Intestinal glutathione: determinant of mucosal peroxide transport, metabolism, and oxidative susceptibility. *Toxicol Appl Pharmacol.* 2005 May 1;204(3):320-8.

- Bellinger DC. Lead. *Pediatrics*. 2004 Apr;113(4 Suppl):1016-22.
- Blanusa M, Varnai VM, Piasek M, Kostial K. Chelators as antidotes of metal toxicity: therapeutic and experimental aspects. *Curr Med Chem*. 2005;12(23):2771-94.
- Boris M, Goldblatt A, Galanko J, James J. Association of MTHFR gene variants with autism. *J Am Phys Surg*. 2004;9(4):106-8.
- Burbacher TM, Shen DD, Liberato N, Grant KS, Cernichiari E, Clarkson T. Comparison of blood and brain mercury levels in infant monkeys exposed to methylmercury or vaccines containing thimerosal. *Environ Health Perspect*. 2005 Aug;113(8):1015-21.
- Chauhan V, Chauhan A. Oxidative stress in Autism. *Pathophysiology*. 2006 Aug;13(3):195-208.
- Chauhan A, Chauhan V, Brown WT, Cohen I. Oxidative stress in autism: increased lipid peroxidation and reduced serum levels of ceruloplasmin and transferrin—the antioxidant proteins. *Life Sci*. 2004 Oct 8;75(21):2539-49.
- Connors SL, Crowell DE. Secretin and autism: the role of cysteine. *J Am Acad Child Adolesc Psychiatry*. 1999 Jul;38(7):795-6.
- Desoto MC, Hitlan RT. Blood Levels of Mercury Are Related to Diagnosis of Autism: A Reanalysis of an Important Data Set. *J Child Neurol*. 2007 Nov;22(11):1308-1311.
- Deth R, Muratore C, Benzecry J, Power-Charnitsky VA, Waly M. How Environmental and Genetic Factors Combine To Cause Autism: A Redox/Methylation Hypothesis. *Neurotoxicology*. 2007 Oct 13;
- Dringen R, Hirrlinger J. Glutathione pathways in the brain. *Biol Chem*. 2003 384(4):505-16.
- Edelson SB, Cantor DS. Autism: xenobiotic influences. *Toxicol Ind Health*. 1998 Jul-Aug;14(4):553-63.
- Ehrhart J, Zeevalk GD. Cooperative interaction between ascorbate and glutathione during mitochondrial impairment in mesencephalic cultures. *J Neurochem* 2003 86(6):1487-97.
- Fernandez-Checa JC et al. Oxidative stress: role of mitochondria and protection by glutathione. *Biofactors*. 1998;8(1-2):7-11.
- Flora SJ, Pande M, Kannan GM, Mehta A. Lead induced oxidative stress and its recovery following co-administration of melatonin or N-acetylcysteine during chelation with succimer in male rats. *Cell Mol Biol (Noisy-le-grand)*. 2004;50.
- Fonnum F, Lock EA. The contributions of excitotoxicity, glutathione depletion and DNA repair in chemically induced injury to neurones: exemplified with toxic effects on cerebellar granule cells. *J Neurochem*. 2004 Feb;88(3):513-31.
- Forman J, Moline J, Cernichiari E, Sayegh S, Torres JC, Landrigan MM, Hudson J, Adel HN, Landrigan PJ. A cluster of pediatric metallic mercury exposure cases treated with meso-2,3-dimercaptosuccinic acid (DMSA). *Environ Health Perspect*. 2000 Jun;108(6):575-7.
- Golse B, Debray-Ritzen P, Durosay P, Puget K, Michelson AM. Alterations in two enzymes: superoxide dismutase and glutathione peroxidase in developmental infantile psychosis (infantile autism). *Rev Neurol (Paris)*. 1978 Nov;134(11):699-705.
- Goth SR, Chu RA, Gregg JP, Cherednichenko G, Pessah IN. Uncoupling of ATP-mediated calcium signaling and dysregulated interleukin-6 secretion in dendritic cells by nanomolar thimerosal. *Environ Health Perspect* 2006; 114(7):1083-91.
- Goyer RA, Cherian MG, Jones MM, Reigart JR. Role of chelating agents for prevention, intervention, and treatment of exposures to toxic metals. *Environ Health Perspect*. 1995 Nov;103(11):1048-52.
- Grandjean P, Landrigan PJ. Developmental neurotoxicity of industrial chemicals. *Lancet*. 2006 Dec 16;368(9553):2167-78.
- Graziano JH, Lolocono NJ, Moulton T, Mitchell ME, Slavkovich V, Zarate C. Controlled study of meso-2,3-dimercaptosuccinic acid for the management of childhood lead intoxication. *J Pediatr*. 1992 Jan;120(1):133-9.
- Havarinasab S, Hultman P. Organic mercury compounds and autoimmunity. *Autoimmunity Rev* 2005;4:270-275.
- Havarinasab S, Haggqvist B, Bjorn E, Pollard KM, Hultman P. Immunosuppressive and autoimmune effects of thimerosal in mice. *Toxicol Appl Pharmacol*. 2005 Apr 15;204(2):109-21.
- Hayes JD, et al. Glutathione S-transferase polymorphisms and their biological consequences. *Pharmacology*. 2000 Sep;61(3):154-66.
- Holmes AS, Blaxill MF, Haley BE. Reduced levels of mercury in first baby haircuts of autistic children. *Int J Toxicol*. 2003 Jul-Aug;22(4):277-85.
- Hornig M, Chian D, Lipkin WI. Neurotoxic effects of postnatal thimerosal are mouse strain dependent. *Mol Psychiatry*. 2004 Sep;9(9):833-45.
- Hunjan MK, Evered DF. Absorption of glutathione from the gastro-intestinal tract. *Biochim Biophys Acta*. 1985 May 14;815(2):184-8.
- Hurlbut KM, Maiorino RM, Mayersohn M, Dart RC, Bruce DC, Aposhian HV Determination and metabolism of dithiol chelating agents. XVI: Pharmacokinetics of 2,3-dimercapto-1-propanesulfonate after intravenous administration to human volunteers. *J Pharmacol Exp Ther*. 1994 Feb;268(2):662-8.
- Ip P, Wong V, Ho M, Lee J, Wong W Mercury exposure in children with autistic spectrum disorder: case-control study. *J Child Neurol*. 2004 Jun;19(6):431-4.
- James SJ, Cutler P, Melnyk S, Jernigan S, Janak L, Gaylor DW, Neubrandner JA. Metabolic biomarkers of increased oxidative stress and impaired methylation capacity in children with autism. *Am J Clin Nutr*. 2004 Dec;80(6):1611-7.
- James SJ, Melnyk S, Jernigan S, Cleves MA, Halsted CH, Wong DH, Cutler P, Bock K, Boris M, Bradstreet JJ, Baker SM, Gaylor DW. Metabolic endophenotype and related genotypes are associated with oxidative stress in children with autism. *Am J Med Genet B Neuropsychiatr Genet*. 2006 Aug 17.
- James SJ, Slikker W 3rd, Melnyk S, New E, Pogribna M, Jernigan S. Thimerosal neurotoxicity is associated with glutathione depletion: protection with glutathione precursors. *Neurotoxicology*. 2005 Jan;26(1):1-8.
- Jepson B, Johnson J. Changing the Course of Autism: A Scientific Approach for Parents and Physicians. Sentient Publications: 2007.
- Kern JK, Jones AM. Evidence of toxicity, oxidative stress, and neuronal insult in autism. *J Toxicol Environ Health B Crit Rev*. 2006 Nov-Dec;9(6):485-99.

- Lafleur DL, Pittenger C, Kelmendi B, Gardner T, Wasyluk S, Malison RT, Sanacora G, Krystal JH, Coric V. N-acetylcysteine augmentation in serotonin reuptake inhibitor refractory obsessive-compulsive disorder. *Psychopharmacology (Berl)*. 2006 Jan;184(2):254-6.
- Lanphear BP, et al. Low-level environmental lead exposure and children's intellectual function: an international pooled analysis. *Environ Health Perspect*. 2005 Jul;113(7):894-9.
- Lauterburg BH, Mitchell JR. Therapeutic doses of acetaminophen stimulate the turnover of cysteine and glutathione in man. *J Hepatol*. 1987 Apr;4(2):206-11.
- Lonsdale D, Shamberger RJ, Audhya T. Treatment of autism spectrum children with thiamine tetrahydrofurfuryl disulfide: a pilot study. *Neuroendocrinol Lett*. 2002 Aug;23(4):303-8.
- Makani S, Gollapudi S, Yel L, Chiplunkar S, Gupta S. Biochemical and molecular basis of thimerosal-induced apoptosis in T cells: a major role of mitochondrial pathway. *Genes Immun*. 2002 Aug;3(5):270-8.
- Mayer M, Noble M. N-acetyl-L-cysteine is a pluripotent protector against cell death and enhancer of trophic factor-mediated cell survival in vitro. *Proc Natl Acad Sci U S A*. 1994 Aug 2;91(16):7496-500.
- McGuinness W. Oxidative stress in autism. *Alternative Therapies*. 2004;10(6):22-37.
- Miller AL. Dimercaptosuccinic acid (DMSA), a non-toxic, water-soluble treatment for heavy metal toxicity. *Altern Med Rev*. 1998 Jun;3(3):199-207.
- Ming X, Stein TP, Brimacombe M, Johnson WG, Lambert GH, Wagner GC. Increased excretion of a lipid peroxidation biomarker in autism. *Prostaglandins Leukot Essent Fatty Acids*. 2005 Nov;73(5):379-84.
- Ming X, Cheh MA, Yochum CL. Evidence of Oxidative Stress in Autism Derived from Animal Models. *Am J Biochem Biotechnol* 4(2): 218-225, 2008.
- N-acetylcysteine. *Altern Med Rev*. 2000 Oct;5(5):467-71.
- Nataf R, Skorupka C, Amet L, Lam A, Springbett A, Lathe R. Porphyrinuria in childhood autistic disorder: implications for environmental toxicity. *Toxicol Appl Pharmacol*. 2006 Jul 15;214(2):99-108.
- Oka S, Kamata H, Kamata K, Yagisawa H, Hirata H. N-acetylcysteine suppresses TNF-induced NF-kappaB activation through inhibition of IkappaB kinases. *FEBS Lett*. 2000 Apr 28;472(2-3):196-202.
- Oliveira G, Diogo L, Grazina M, Garcia P, Ataíde A, Marques C, Miguel T, Borges L, Vicente AM, Oliveira CR. Mitochondrial dysfunction in autism spectrum disorders: a population-based study. *Dev Med Child Neurol*. 2005 Mar;47(3):185-9.
- Palmer RF, Blanchard S, Stein Z, Mandell D, Miller C. Environmental mercury release, special education rates, and autism disorder: an ecological study of Texas. *Health Place*. 2006 Jun;12(2):203-9.
- Pangborn J, Baker SM. Autism: Effective Biomedical Treatments (Have We Done Everything We Can For This Child? Individuality In An Epidemic). Second ed. San Diego: Autism Research Institute, 2005:299-301.
- Pasca SP, Nemes B, Vlase L, Gagyi CE, Dronca E, Miu AC, Dronca M. High levels of homocysteine and low serum paraoxonase 1 arylesterase activity in children with autism. *Life Sci*. 2006 Apr 4;78(19):2244-8.
- Pastore A et al. Analysis of glutathione: implication in redox and detoxification. *Clin Chim Acta*. 2003 Jul 1;333(1):19-39.
- Planas-Bohne F. The effect of 2,3-dimercaptopropane-1-sulfonate and dimercaptosuccinic acid on the distribution and excretion of mercuric chloride in rats. *Toxicology*. 1981;19(3):275-8.
- Poling JS, Frye RE, Shoffner J, Zimmerman AW. Developmental regression and mitochondrial dysfunction in a child with autism. *J Child Neurol*. 2006 Feb;21(2):170-2.
- Rose S, Melnyk S, Savenka A, Hubanks A, Jernigan S, Cleves M, James SJ. The Frequency of Polymorphisms affecting Lead and Mercury Toxicity among Children with Autism. *Am J Biochem Biotechnol* 4(2): 85-94, 2008.
- Rossignol DA, Bradstreet JJ. Evidence of Mitochondrial Dysfunction in Autism and Implications for Treatment. *Am J Biochem Biotechnol*. 4(2): 208-217, 2008
- Sajdel-Sulkowska E, Lipinski B, Windom H, Audhya T, McGinnis W. Oxidative stress in autism: Elevated cerebellar 3-nitrotyrosine levels. *Am J Biochem Biotechnol*. 4 (2): 73-84, 2008.
- Schauer RJ, et al. Intravenous administration of glutathione protects parenchymal and non-parenchymal liver cells against reperfusion injury following rat liver transplantation. *World J Gastroenterol*. 2004 Mar 15;10(6):864-70.
- Shannon M, Graef JW. Lead intoxication in children with pervasive developmental disorders. *J Toxicol Clin Toxicol*. 1996;34(2):177-81.
- Sheehan D et al. Structure, function and evolution of glutathione transferases: implications for classification of non-mammalian members of an ancient enzyme superfamily. *Biochem J*. 2001 Nov 15;360(Pt 1):1-16.
- Sogut S, et al. Changes in nitric oxide levels and antioxidant enzyme activities may have a role in the pathophysiological mechanisms involved in autism. *Clin Chim Acta*. 2003 May;331(1-2):111-7.
- Stangle DE, Smith DR, Beaudin SA, Strawderman MS, Levitsky DA, Strupp BJ. Succimer chelation improves learning, attention and arousal regulation in lead-exposed rats but produces lasting cognitive impairment in the absence of lead exposure. *Environ Health Perspect*. 30 October 2006.
- Testa B, Testa D, Mesolella M, D'Errico G, Tricarico D, Motta G. Management of chronic otitis media with effusion: the role of glutathione. *Laryngoscope*. 2001 Aug;111(8):1486-9.
- Waly M, Olteanu H, Banerjee R, Choi SW, Mason JB, Parker BS, Sukumar S, Shim S, Sharma A, Benzecry JM, Power-Charnitsky VA, Deth RC. Activation of methionine synthase by insulin-like growth factor-1 and dopamine: a target for neurodevelopmental toxins and thimerosal. *Mol Psychiatry*. 2004 Apr;9(4):358-7
- Wang XF, Cynader MS. Astrocytes provide cysteine to neurons by releasing glutathione. *J Neurochem*. 2000 74(4):1434-42.
- Waring RH, Klovra LV. Sulphur metabolism in autism. *J Nutr Env Med*. 2000;10:25-32.
- Waring RH., et al. Biochemical parameters in autistic children. *Dev Brain Dysfunction*. 1997;10:40-43.
- Westphal GA, et al. Homozygous gene deletions of the glutathione S-transferases M1 and T1 are associated with thimerosal sensitization. *Int Arch Occup Environ Health* 2000 73(6):384-8.
- Whiteley P, Shattock P. Biochemical aspects in autism spectrum disorders: updating the opioid-excess theory and presenting new opportunities for biomedical intervention. *Expert Opin Ther Targets*. 2002 Apr;6(2):175-83.

- Windham G, Zhang L, Gunier R, Croen L, Grether J. Autism Spectrum Disorders in Relation to Distribution of Hazardous Air Pollutants in the San Francisco Bay Area. *Environ Health Perspect*. 2006 Sep;114(9):1438-44.
- Yorbik O, Sayal A, Akay C, Akbiyik DI, Sohmen T. Investigation of antioxidant enzymes in children with autistic disorder. *Prostaglandins Leukot Essent Fatty Acids*. 2002 Nov;67(5):341-3.
- Zoroglu SS, Armutcu F, Ozen S, Gurel A, Sivasli E, Yetkin O, Meram I. Increased oxidative stress and altered activities of erythrocyte free radical scavenging enzymes in autism. *Eur Arch Psychiatry Clin Neurosci*. 2004 Jun;254(3):143-7.
- Zoroglu SS, Yurekli M, Meram I, Sogut S, Tutkun H, Yetkin O, Sivasli E, Savas HA, Yanik M, Herken H, Akyol O. Pathophysiological role of nitric oxide and adrenomedullin in autism. *Cell Biochem Funct*. 2003 Mar;21(1):55-60.

Autism and the Brain

- Ahlsen G, Rosengren L, Belfrage M, Palm A, Haglid K, Hamberger A, Gillberg C. Glial fibrillary acidic protein in the cerebrospinal fluid of children with autism and other neuropsychiatric disorders. *Biol Psychiatry*. 1993 May 15;33(10):734-43.
- Bolman WM, Richmond JA. A double-blind, placebo-controlled, crossover pilot trial of low dose dimethylglycine in patients with autistic disorder. *J Autism Dev Disord*. 1999 Jun;29(3):191-4.
- Bruni O, Ferri R, Miano S, Verrillo E. L -5-Hydroxytryptophan treatment of sleep terrors in children. *Eur J Pediatr*. 2004 Jul;163(7):402-7.
- Bubenik GA, Blask DE, Brown GM, Maestroni GJM, Pang SF, Reiter RJ, Viswanathan M, Zisapel N. Prospects of the clinical utilization of melatonin. *Biological Signals and Receptors*. 1998;7:195-219.
- Connor DF, Fletcher KE, Swanson JM. A meta-analysis of clonidine for symptoms of attention-deficit hyperactivity disorder. *J Am Acad Child Adolesc Psychiatry*. 1999 Dec;38(12):1551-9.
- Dennog C, Gedik C, Wood S, Speit G. Analysis of oxidative DNA damage and HPRT mutations in humans after hyperbaric oxygen treatment. *Mutat Res*. 1999 Dec 17;431(2):351-9.
- Erickson CA, Posey DJ, Stigler KA, Mullett J, Katschke AR, McDougle CJ. A retrospective study of memantine in children and adolescents with pervasive developmental disorders. *Psychopharmacology (Berl)*. 2006 Oct 3.
- Fischer BH, Marks M, Reich T. Hyperbaric-oxygen treatment of multiple sclerosis. A randomized, placebo-controlled, double-blind study. *N Engl J Med*. 1983 Jan 27;308(4):181-6.
- Friedman SD, Shaw DW, Artru AA, Richards TL, Gardner J, Dawson G, Posse S, Dager SR. Regional brain chemical alterations in young children with autism spectrum disorder. *Neurology*. 2003 Jan 14;60(1):100-7.
- Giannotti F, Cortesi F, Cerquiglini A, Bernabei P. An open-label study of controlled-release melatonin in treatment of sleep disorders in children with autism. *J Autism Dev Disord*. 2006 Aug;36(6):741-52.
- Helms AK, Whelan HT, Torbey MT. Hyperbaric oxygen therapy of cerebral ischemia. *Cerebrovasc Dis*. 2005;20(6):417-26.
- Herbert M., Autism: A Brain disorder, or disorder that affects the brain? *Clinical Neuropsychiatry* 2006; 1(2):354-79.
- Hollander E, et al. Oxytocin Increases Retention of Social Cognition in Autism. *Biol Psychiatry*. 2006 Aug 10.
- Hrdlicka M et al. Not EEG abnormalities but epilepsy is associated with autistic regression and mental functioning in childhood autism. *Eur Child Adolesc Psychiatry*. 2004 13(4):209-13.
- Ishizaki A, Sugama M, Takeuchi N. Usefulness of melatonin for developmental sleep and emotional/behavior disorders—studies of melatonin trial on 50 patients with developmental disorders. *No To Hattatsu*. 1999 Sep;31(5):428-37.
- Joiner, JT (Ed.). The Proceedings of the 2nd International Symposium on Hyperbaric Oxygenation for Cerebral Palsy and the Brain-Injured Child. Flagstaff, AZ: Best Publishing Company. (2002).
- Keithahn C, Lerchl A. 5-hydroxytryptophan is a more potent in vitro hydroxyl radical scavenger than melatonin or vitamin C. *J Pineal Res*. 2005 Jan;38(1):62-6.
- Kern JK, Miller VS, Cauller PL, Kendall PR, Mehta PJ, Dodd M. Effectiveness of N,N-dimethylglycine in autism and pervasive developmental disorder. *J Child Neurol*. 2001 Mar;16(3):169-73.
- Kidd PM. Neurodegeneration from mitochondrial insufficiency: nutrients, stem cells, growth factors, and prospects for brain rebuilding using integrative management. *Altern Med Rev*. 2005 Dec;10(4):268-93.
- King BH, Bostic JQ. An update on pharmacologic treatments for autism spectrum disorders. *Child Adolesc Psychiatr Clin N Am*. 2006 Jan;15(1):161-75.
- Kotler M, Rodriguez C, Sainz RM, Antolin I, Menendez-Pelaez A. Melatonin increases gene expression for antioxidant enzymes in rat brain cortex. *J Pineal Res*. 1998 Mar;24(2):83-9.
- MacFabe DF, et al. Neurobiological effects of intraventricular propionic acid in rats: possible role of short chain fatty acids on the pathogenesis and characteristics of autism spectrum disorders. *Behav Brain Res*. 2007 Jan 10;176(1):149-69.
- Ohnishi T, Matsuda H, Hashimoto T, Kunihiro T, Nishikawa M, Uema T, Sasaki M. Abnormal regional cerebral blood flow in childhood autism. *Brain*. 2000 Sep;123 (Pt 9):1838-44.
- Park YD. The effects of vagus nerve stimulation therapy on patients with intractable seizures and either Landau-Kleffner syndrome or autism. *Epilepsy Behav*. 2003 Jun;4(3):286-90.
- Plioplys AV. Autism: electroencephalogram abnormalities and clinical improvement with valproic acid. *Arch Pediatr Adolesc Med*. 1994 Feb;148(2):220-2.
- Posey DJ, Puntney JL, Sasher TM, Kem DL, McDougle CJ. Guanfacine treatment of hyperactivity and inattention in pervasive developmental disorders: a retrospective analysis of 80 cases. *J Child Adolesc Psychopharmacol*. 2004 Summer;14(2):233-41.
- Ramaekers VT, Blau N, Sequeira JM, Nassogne MC, Quadros EV. Folate receptor autoimmunity and cerebral folate deficiency in low-functioning autism with neurological deficits. *Neuropediatrics*. 2007 Dec;38(6):276-81.
- Reiter RJ, Tan DX, Burkhardt S. Reactive oxygen and nitrogen species and cellular and organismal decline: amelioration with melatonin. *Mech Ageing Dev*. 2002 Apr 30;123(8):1007-19.
- Rimland B. Dimethylglycine, a nontoxic metabolite, and autism. *Autism Research Review International*. 1990;4(2)3.
- Rockswold GL, Ford SE, Anderson DC, Bergman TA, Sherman RE. Results of a prospective randomized trial for treatment of severely brain-injured patients with hyperbaric oxygen. *J Neurosurg*. 1992 Jun;76(6):929-34.

- Rossignol DA, Rossignol LW. Hyperbaric oxygen therapy may improve symptoms in autistic children. *Med Hypotheses*. 2006;67(2):216-28. Epub 2006 Mar 22.
- Ryu YH, Lee JD, Yoon PH, Kim DI, Lee HB, Shin YJ. Perfusion impairments in infantile autism on technetium-99m ethyl cysteinate dimer brain single-photon emission tomography: comparison with findings on magnetic resonance imaging. *Eur J Nucl Med*. 1999 Mar;26(3):253-9.
- Sakoda M, Ueno S, Kihara K, Arikawa K, Dogomori H, Nuruki K, Takao S, Aikou T. A potential role of hyperbaric oxygen exposure through intestinal nuclear factor-kappaB. *Crit Care Med*. 2004 Aug;32(8):1722-9.
- Shattock P, Kennedy A, Rowell F, Berney T. Role of neuropeptides in autism and their relationship with classical neurotransmitters. *Brain Dysfunction* 1990;3: 328-345.
- Shultz SR, Macfabe DF, Ossenkopp KP, Scratch S, Whelan J, Taylor R, Cain DP. Intracerebroventricular injection of propionic acid, an enteric bacterial metabolic end-product, impairs social behavior in the rat: Implications for an animal model of autism. *Neuropharmacology*. 2008 May;54(6):901-11.
- Stoller KP. Quantification of neurocognitive changes before, during, and after hyperbaric oxygen therapy in a case of fetal alcohol syndrome. *Pediatrics*. 2005 Oct;116(4):e586-91.
- Tharp BR. Epileptic encephalopathies and their relationship to developmental disorders: Do spikes cause autism? *Ment Retard Dev Disabil Res Rev*. 2004;10(2):132-4.
- Toda Y, Mori K, Hashimoto T, Miyazaki M, Nozaki S, Watanabe Y, Kuroda Y, Kagami S. Administration of secretin for autism alters dopamine metabolism in the central nervous system. *Brain Dev*. 2006 Mar;28(2):99-103.
- Turner EH, Loftis JM, Blackwell AD. Serotonin a la carte: supplementation with the serotonin precursor 5-hydroxytryptophan. *Pharmacol Ther*. 2006 Mar;109(3):325-38.
- Welch MG, Ludwig RJ, Opler M, Ruggiero DA. Secretin's role in the cerebellum: a larger biological context and implications for developmental disorders. *Cerebellum*. 2006;5(1):2-6.
- Williams KW, Wray JJ, Wheeler DM. Intravenous secretin for autism spectrum disorder. *Cochrane Database Syst Rev*. 2005 Jul 20;(3):CD003495.
- Yang Z, Nandi J, Wang J, Bosco G, Gregory M, Chung C, Xie Y, Yang X, Camporesi EM. Hyperbaric oxygenation ameliorates indomethacin-induced enteropathy in rats by modulating TNF-alpha and IL-1beta production. *Dig Dis Sci*. 2006 Aug;51(8):1426-33.

Viruses and Bacteria in Autism

- Caruso JM et al. Persistent preceding focal neurologic deficits in children with chronic Epstein-Barr virus encephalitis. *J Child Neurol*. 2000 Dec;15(12):791-6.
- Chess S, Fernandez P, Korn S. Behavioral consequences of congenital rubella. *J Pediatr*. 1978 Oct;93(4):699-703.
- DeLong GR et al. Acquired reversible autistic syndrome in acute encephalopathic illness in children. *Arch Neurol*. 1981 Mar;38(3):191-4.
- Dyken PR. Neuroprogressive disease of post-infectious origin: a review of a resurging subacute sclerosing panencephalitis (SSPE). *Ment Retard Dev Disabil Res Rev*. 2001;7(3):217-25.
- Ghaziuddin M et al. Autistic symptoms following herpes encephalitis. *Eur Child Adolesc Psychiatry*. 2002 Jun;11(3):142-6.
- Gillberg IC. Autistic syndrome with onset at age 31 years: herpes encephalitis as a possible model for childhood autism. *Dev Med Child Neurol*. 1991 Oct;33(10):920-4.
- Gillberg C. Onset at age 14 of a typical autistic syndrome. A case report of a girl with herpes simplex encephalitis. *J Autism Dev Disord*. 1986 Sep;16(3):369-75.
- Hornig M, Weissenböck H, Horscroft N, Lipkin WI. An infection-based model of neurodevelopmental damage. *Proc Natl Acad Sci USA* 1999 Oct 12; 96(21):12102-7.
- Hornig M, Lipkin WI. Infectious and immune factors in the pathogenesis of neurodevelopmental disorders: Epidemiology, hypotheses, and animal models. *Ment Retard Dev Disabil Res Rev* 2001; 7(3):200-10. □
- Ivarsson SA et al. Autism as one of several disabilities in two children with congenital cytomegalovirus infection. *Neuropediatrics*. 1990 May;21(2):102-3.
- Libbey JE, Sweeten TL, McMahon WM, Fujinami RS. Autistic disorder and viral infections. *J Neurovirol*. 2005 Feb;11(1):1-10.
- Nicolson GL, Gan R, Nicolson NL, Haier J. Evidence for Mycoplasma spp., Chlamydia pneumoniae, and human herpes virus-6 coinfections in the blood of patients with autistic spectrum disorders. *J Neurosci Res*. 2007 Apr;85(5):1143-8.
- O'Leary JJ et al. Measles virus and autism. *Lancet*. 2000 Aug 26;356(9231):772.
- Singh VK, Jensen RL. Elevated levels of measles antibodies in children with autism. *Pediatr Neurol*. 2003 Apr;28(4):292-4.
- Singh VK et al. Abnormal measles-mumps-rubella antibodies and CNS autoimmunity in children with autism. *J Biomed Sci*. 2002 Jul-Aug;9(4):359-64.
- Singh VK et al. Serological association of measles virus and human herpesvirus-6 with brain autoantibodies in autism. *Clin Immunol Immunopathol* 1998 89(1):105-8.
- Stubbs EG, Budden SS, Burger DR, Vandenbark AA. Transfer factor immunotherapy of an autistic child with congenital cytomegalovirus. *J Autism Dev Disord*. 1980 Dec;10(4):451-8.
- Stubbs EG et al. Autism and congenital cytomegalovirus. *J Autism Dev Disord*. 1984 Jun;14(2):183-9.
- Sweeten TL, Posey DJ, McDougle CJ. Brief report: autistic disorder in three children with cytomegalovirus infection. *J Autism Dev Disord*. 2004 Oct;34(5):583-6.
- Valsamakis A et al. Altered virulence of vaccine strains of measles virus after prolonged replication in human tissue. *J Virol*. 1999 73(10): 8791-7.

Immune System Dysfunction and Treatment

- Anderson MP, Hooker BS, Herbert MR. Bridging from Cells to Cognition in Autism Pathophysiology: Biological Pathways to Defective Brain Function and Plasticity. *Am J Biochem Biotechnol* 4(2): 167-176, 2008.

- Ashwood P, Kwong C, Hansen R, Hertz-Picciotto I, Croen L, Krakowiak P, Walker W, Pessah IN, Van de Water J. Brief report: plasma leptin levels are elevated in autism: association with early onset phenotype? *J Autism Dev Disord*. 2008 Jan;38(1):169-75.
- Ashwood P, Anthony A, Pellicer AA, Torrente F, Walker-Smith JA, Wakefield AJ. Intestinal lymphocyte populations in children with regressive autism: evidence for extensive mucosal immunopathology. *J Clin Immunol*. 2003 Nov;23(6):504-17.
- Ashwood P, Anthony A, Torrente F, Wakefield AJ. Spontaneous mucosal lymphocyte cytokine profiles in children with autism and gastrointestinal symptoms: mucosal immune activation and reduced counter regulatory interleukin-10. *J Clin Immunol*. 2004 Nov;24(6):664-73.
- Ashwood P, Van de Water J. Is autism an autoimmune disease? *Autoimmun Rev*. 2004 Nov;3(7-8):557-62.
- Ashwood P, Willis S, Van de Water J. The immune response in autism: a new frontier for autism research. *J Leuk Biol*. 2006 Jul;80:1-15.
- Bayary J, et al. Intravenous immunoglobulin in autoimmune disorders: an insight into the immunoregulatory mechanisms. *Int Immunopharmacol*. 2006 Apr;6(4):528-34.
- Boris M, Goldblatt A, Edelson S. Improvement in children treated with intravenous gamma globulin. *J Nutr Environmental Med*. Dec 2006; 15(4):1-8.
- Boris M, Kaiser C, Goldblatt A, Elice MW, Edelson SM, Feinstein DL. Effect of Pioglitazone treatment on behavioral symptoms in autistic children. *J Neuroinflammation*. 2007 Jan 5;4:3.
- Bradstreet JJ, Smith S, Granpeesheh D, El-Dahr JM, Rossignol D. Spironolactone Might be a Desirable Immunologic and Hormonal Intervention in Autism Spectrum Disorders. *Med Hypotheses*. 2006 Dec 4.
- Bradstreet JJ, El Dahr JM, Anthony A, Kartzinel JJ, Wakefield AJ. Detection of measles virus genomic RNA in cerebrospinal fluid of children with regressive autism: a report of three cases. *J Am Phys Surg*. 2004;9(2):38-45.
- Braunschweig D, Ashwood P, Krakowiak P, Hertz-Picciotto I, Hansen R, Croen LA, Pessah IN, Van de Water J. Autism: Maternally derived antibodies specific for fetal brain proteins. *Neurotoxicology*. 2007 Nov 6.
- Bray TM, Taylor CG. Enhancement of tissue glutathione for antioxidant and immune functions in malnutrition. *Biochem Pharmacol*. 1994 Jun 15;47(12):2113-23.
- Cabanlit M, Wills S, Goines P, Ashwood P, Van de Water J. Brain-specific autoantibodies in the plasma of subjects with autistic spectrum disorder. *Ann N Y Acad Sci*. 2007 Jun;1107:92-103.
- Chinetti G, Fruchart JC, Staels B. Peroxisome proliferators-activated receptors (PPAR): nuclear receptors at the crossroads between lipid metabolism and inflammation. *Inflamm Res* 2000;49:497-505.
- Comi AM, Zimmerman AW, Frye VH, Law PA, Peeden JN. Familial clustering of autoimmune disorders and evaluation of medical risk factors in autism. *J Child Neurol*. 1999 Jun;14(6):388-94. Nov;112(5):e420.
- Connolly AM, Chez MG, Pestronk A, Arnold ST, Mehta S, Deuel RK. Serum autoantibodies to brain in Landau-Kleffner variant, autism, and other neurologic disorders. *J Pediatr*. 1999 May;134(5):607-13.
- Croen LA, Grether JK, Yoshida CK, Odouli R, Van de Water J. Maternal autoimmune diseases, asthma and allergies, and childhood autism spectrum disorders: a case-control study. *Arch Pediatr Adolesc Med*. 2005 Feb;159(2):151-7.
- Croonenberghs J, Wauters A, Devreese K, Verkerk R, Scharpe S, Bosmans E, Egyed B, Deboutte D, Maes M. Increased serum albumin, gamma globulin, immunoglobulin IgG, and IgG2 and IgG4 in autism. *Psychol Med*. 2002 Nov;32(8):1457-63.
- Cross ML. Immune-signalling by orally-delivered probiotic bacteria: effects on common mucosal immunoresponses and protection at distal mucosal sites. *Int J Immunopathol Pharmacol*. 2004 May-Aug;17(2):127-34.
- Dalton P, Deacon R, Blamire A, Pike M, McKinlay I, Stein J, Styles P, Vincent A. Maternal neuronal antibodies associated with autism and a language disorder. *Ann Neurol*. 2003 Apr;53(4):533-7.
- DeGiudice-Asch G, Simon L, Schmeidler J, Cunningham-Rundles C, Hollander E. Brief report: A pilot open clinical trial of intravenous immunoglobulin in childhood autism. *J Autism Dev Disord*. 1999;29(2):157-60.
- DeLong GR, Bean SC, Brown FR 3rd. Acquired reversible autistic syndrome in acute encephalopathic illness in children. *Arch Neurol*. 1981 Mar;38(3):191-4.
- Denney DR, Frei BW, Gaffney GR. Lymphocyte subsets and interleukin-2 receptors in autistic children. *J Autism Dev Disord*. 1996 Feb;26(1):87-97.
- Droge W, Breiterkreutz R. Glutathione and immune function. *Proc Nutr Soc*. 2000 Nov;59(4):595-600.
- Elchaar GM, Maisch NM, Augusto LM, Wehring HJ. Efficacy and safety of naltrexone use in pediatric patients with autistic disorder. *Ann Pharmacother*. 2006 Jun;40(6):1086-95.
- Engstrom HA, Ohlson S, Stubbs EG, Maciulis A, Caldwell V, Odell JD, Torres A.R. Decreased Expression of CD95 (FAS/APO-1) on CD4+ T-lymphocytes from Participants with Autism. *J Dev Phys Disabil*. 2003 Jun 15;2:155-163(9).
- Fallon J. Could one of the most widely prescribed antibiotics amoxicillin/ clavulanate "augmentin" be a risk factor for autism? *Med Hypotheses*. 2005;64(2):312-5.
- Ferrante P, Saresella M, Guerini FR, Marzorati M, Musetti MC, Cazzullo AG. Significant association of HLA A2-DR11 with CD4 naive decrease in autistic children. *Biomed Pharmacother*. 2003 Oct;57(8):372-4.
- Feinstein DL. Therapeutic potential of peroxisome proliferator-activated receptor agonists for neurological disease. *Diabetes Technol Ther*. 2003;5(1):67-73.
- Fiumara A, Sciotto A, Barone R, D'Asero G, Munda S, Parano E, Pavone L. Peripheral lymphocyte subsets and other immune aspects in Rett syndrome. *Pediatr Neurol*. 1999 Sep;21(3):619-21.
- Fudenberg HH. Dialysable lymphocyte extract (DLyE) in infantile onset autism: a pilot study. *Biotherapy*. 1996;9(1-3):143-7.
- Furlano RI, et al. Autism and the immune system. *J Child Psychol Psychiatry*. 1997 Mar;38(3):337-49.
- Geier DA, Geier MR. A Clinical and Laboratory Evaluation of Methionine Cycle-Transsulfuration and Androgen Pathway Markers in Children with Autistic Disorders. *Horm Res*. 2006 Jul 5;66(4):182-188.
- Griem P., et al.; Allergic and autoimmune reactions to xenobiotics: how do they arise? *Immunology Today* 19: 133-141, 1998.

- Gupta S. Immunological treatments for autism. *J Autism Dev Disord.* 2000 Oct;30(5):475-9.
- Gupta S, Aggarwal S, Heads C. Dysregulated immune system in children with autism: beneficial effects of intravenous immune globulin on autistic characteristics. *J Autism Dev Disord.* 1996 Aug;26(4):439-52.
- Gupta S, Aggarwal S, Rashanravan B, Lee T. Th1- and Th2-like cytokines in CD4+ and CD8+ T cells in autism. *J Neuroimmunol.* 1998 May 1;85(1):106-9.
- Jyonouchi H, Geng L, Ruby A, Reddy C, Zimmerman-Bier B. Evaluation of an association between gastrointestinal symptoms and cytokine production against common dietary proteins in children with autism spectrum disorders. *J Pediatr.* 2005 May;146(5):605-10.
- Jyonouchi H, Sun S, Le H. Proinflammatory and regulatory cytokine production associated with innate and adaptive immune responses in children with autism spectrum disorders and developmental regression. *J Neuroimmunol.* 2001 Nov 1;120(1-2):170-9.
- Jyonouchi H, Sun S, Itokazu N. Innate immunity associated with inflammatory responses and cytokine production against common dietary proteins in patients with autism spectrum disorder. *Neuropsychobiology.* 2002;46(2):76-84.
- Jyonouchi H, Geng L, Ruby A, Zimmerman-Bier B. Dysregulated innate immune responses in young children with autism spectrum disorders: their relationship to gastrointestinal symptoms and dietary intervention. *Neuropsychobiology.* 2005;51(2):77-85.
- Kelly GS. Bovine colostrums: a review of clinical uses. *Altern Med Rev.* 2003 Nov;8(4):378-94.
- Kidd PM. Autism, an extreme challenge to integrative medicine. Part 2: medical management. *Altern Med Rev.* 2002 Dec;7(6):472-99.
- Knickmeyer R, Baron-Cohen S, Raggatt P, Taylor K. Foetal testosterone, social relationships, and restricted interests in children. *J Child Psychol Psychiatry.* 2005 Feb;46(2):198-210.
- Konstantareas MM, Homatidis S. Ear infections in autistic and normal children. *J Autism Dev Disord.* 1987 Dec;17(4):585-94.
- Korvatska E, Van de Water J, Anders TF, Gershwin ME. Genetic and immunologic considerations in autism. *Neurobiol Dis.* 2002 Mar;9(2):107-25.
- Koski CL, Patterson JV. Intravenous immunoglobulin use for neurologic diseases. *J Infus Nurs.* 2006 May-Jun;29(3 Suppl):S21-8.
- Krause I, He XS, Gershwin ME, Shoenfeld Y. Brief report: immune factors in autism: a critical review. *J Autism Dev Disord.* 2002 Aug;32(4):337-45.
- Lipkin WI, Hornig M. Microbiology and immunology of autism spectrum disorders. *Novartis Found Symp.* 2003;251:129-43; discussion 144-8, 281-97.
- Lucarelli S et al. Food allergy and infantile autism. *Panminerva Med.* 1995 Sep;37(3):137-41.
- Martin LA, Ashwood P, Braunschweig D, Cabanlit M, Van de Water J, Amaral DG. Stereotypies and hyperactivity in rhesus monkeys exposed to IgG from mothers of children with autism. *Brain Behav Immun.* 2008 Feb 7.
- McDonald KL, Huq SI, Lix LM, Becker AB, Kozyrskyj AL. Delay in diphtheria, pertussis, tetanus vaccination is associated with a reduced risk of childhood asthma. *J Allergy Clin Immunol.* 2008
- Meffert M, Baltimore D. Physiological Functions of brain NF-KB. *Trends in Neurosciences.* 2005;28(1):37-43.
- Meyer U, Nyffeler M, Engler A, Urwyler A, Schedlowski M, Knuesel I, Yee BK, Feldon J. The time of prenatal immune challenge determines the specificity of inflammation-mediated brain and behavioral pathology. *J Neurosci.* 2006 May 3;26(18):4752-62.
- Molloy C, et al. Elevated cytokine levels in children with autism spectrum disorder. *J Neuroimmunology.* 2006;172:198-205.
- Mouridsen SE, Rich B, Isager T, Nedergaard NJ. Autoimmune diseases in parents of children with infantile autism: a case-control study. *Dev Med Child Neurol.* 200Jun;49(6):429-32.
- Niehus R, Lord C. Early medical history of children with autism spectrum disorders. *J Dev Behav Pediatr.* 2006 Apr;27(2 Suppl):S120-7.
- Okada K, et al. Decreased serum levels of transforming growth factor-beta1 in patients with autism. *Prog Neuropsychopharmacol Biol Psychiatry.* 2006 Oct 5.
- Pardo CA, et al. Immunity, neuroglia and neuroinflammation in autism. *Int Rev Psychiatry.* 2005 Dec;17(6):485-95.
- Pessah IN, Seegal RF, Lein PJ, Lasalle J, Yee BK, Van De Water J, Berman RF. Immunologic and neurodevelopmental susceptibilities of autism. *Neurotoxicology.* 2008.
- Pletnikov MV, Jones ML, Rubin SA, Moran TH, Carbone KM. Rat model of autism spectrum disorders. Genetic background effects on Borna disease virus-induced developmental brain damage. *Ann N Y Acad Sci.* 2001 Jun;939:318-9.
- Plioplys AV. Intravenous immunoglobulin treatment of children with autism. *J Child Neurol.* 1998 Feb;13(2):79-82.
- Plioplys AV, Greaves A, Yoshida W. Anti-CNS antibodies in childhood neurologic diseases. *Neuropediatrics.* 1989;20:93.
- Rea WJ, Didriksen N, Simon TR, Pan Y, Fenyves EJ, Griffiths B. Effects of toxic exposure to molds and mycotoxins in building-related illnesses. *Arch Environ Health.* 2003 Jul;58(7):399-405.
- Schneider CK, Melmed RD, Barstow LE, Enriquez FJ, Ranger-Moore J, Ostrem JA. Oral Human Immunoglobulin for Children with Autism and Gastrointestinal Dysfunction: A Prospective, Open-Label Study. *J Autism Dev Disord.* 2006 Jul 15.
- Scifo R, et al. Opioid-immune interactions in autism: behavioural and immunological assessment during a double-blind treatment with naltrexone. *Ann Ist Super Sanita.* 1996;32(3):351-9.
- Silva SC, et al. Autoantibody repertoires to brain tissue in autism nuclear families. *J Neuroimmunol.* 2004 Jul;152(1-2):176-82.
- Singer HS, Morris CM, Williams PN, Yoon DY, Hong JJ, Zimmerman AW. Antibrain antibodies in children with autism and their unaffected siblings. *J Neuroimmunol.* 2006 Sep;178(1-2):149-155.
- Singer HS, Morris CM, Gause CD, Gillin PK, Crawford S, Zimmerman AW. Antibodies against fetal brain in sera of mothers with autistic children. *J Neuroimmunol.* 2008 Feb;194(1-2):165-72.
- Singh VK. Plasma increase of interleukin-12 and interferon-gamma. Pathological significance in autism. *J Neuroimmunol.*

- 1996 May;66(1-2):143-5.
- Singh VK. Th1- and Th2-like cytokines in CD4+ and CD8+ T cells in autism. *J Neuroimmunol.* 1998 May 1;85(1):106-9.
- Singh VK, Warren R, Averett R, Ghaziuddin M. Circulating autoantibodies to neuronal and glial filament proteins in autism. *Pediatr Neurol.* 1997 Jul;17(1):88-90.
- Singh VK, Warren RP, Odell JD, Warren WL, Cole P. Antibodies to myelin basic protein in children with autistic behavior. *Brain Behav Immun.* 1993 Mar;7(1):97-103.
- Singh VK, Singh EA, Warren RP. Hyperserotoninemia and serotonin receptor antibodies in children with autism but not mental retardation. *Biol Psychiatry.* 1997 Mar 15;41(6):753-5.
- Singh VK, Rivas WH. Prevalence of serum antibodies to caudate nucleus in autistic children. *Neurosci Lett.* 2004 Jan 23;355(1-2):53-6.
- Siragam V, Crow AR, Brinc D, Song S, Freedman J, Lazarus AH. Intravenous immunoglobulin ameliorates ITP via activating Fc gamma receptors on dendritic cells. *Nat Med.* 2006 Jun;12(6):688-92.
- Stubbs EG, Crawford ML. Depressed lymphocyte responsiveness in autistic children. *J Autism Child Schizophr.* 1977 Mar;7(1):49-55.
- Stubbs EG, Budden SS, Burger DR, Vandenberg AA. Transfer factor immunotherapy of an autistic child with congenital cytomegalovirus. *J Autism Dev Disord.* 1980 Dec;10(4):451-8.
- Suh JH, Walsh WJ, McGinnis WR, Lewis A, Ames BN. Altered Sulfur Amino Acid Metabolism In Immune Cells of Children Diagnosed With Autism. *Am J Biochem Biotechnol* 4(2): 105-113, 2008.
- Swedo SE, et al. Pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections: clinical description of the first 50 cases. *Am J Psychiatry.* 1998 Feb;155(2):264-71.
- Swedo SE, Leonard HL, Rapoport JL. The pediatric autoimmune neuropsychiatric disorders associated with streptococcal infection (PANDAS) subgroup: separating fact from fiction. *Pediatrics.* 2004 Apr;113(4):907-11.
- Swedo SE, Grant PJ. Annotation: PANDAS: a model for human autoimmune disease. *J Child Psychol Psychiatry.* 2005 Mar;46(3):227-34.
- Sweeten TL, Bowyer SL, Posey DJ, Halberstadt GM, McDougle CJ. Increased prevalence of familial autoimmunity in probands with pervasive developmental disorders. *Pediatrics.* 2003
- Sweeten TL, Posey DJ, McDougle CJ. High blood monocyte counts and neopterin levels in children with autistic disorder. *Am J Psychiatry.* 2003 Sep;160(9):1691-3.
- Sweeten TL, Posey DJ, Shankar S, McDougle CJ. High nitric oxide production in autistic disorder: a possible role for interferon-gamma. *Bio Psychiatry.* 2004 Feb 15;55(4):434-7.
- Todd RD, Hickok JM, Anderson GM, Cohen DJ. Antibrain antibodies in infantile autism. *Biol Psychiatry.* 1988 Mar 15;23(6):644-7.
- Tordjman S, Ferrari P, Sulmont V, Duyme M, Roubertoux P. Androgenic activity in autism. *Am J Psychiatry.* 1997 Nov;154(11):1626-7.
- Torrente F, et al. Small intestinal enteropathy with epithelial IgG and complement deposition in children with regressive autism. *Mol Psychiatry.* 2002;7(4):375-82, 334.
- Trajkovski V, Ajdinski L, Spiroski M. Plasma concentration of immunoglobulin classes and subclasses in children with autism in the Republic of Macedonia: retrospective study. *Croat Med J.* 2004 Dec;45(6):746-9.
- Tuchman RF, Rapin I, Shinnar S. Autistic and dysphasic children. I: Clinical characteristics. *Pediatrics.* 1991 Dec;88(6):1211-8.
- Vargas DL, Nascimbene C, Krishnan C, Zimmerman AW, Pardo CA. Neuroglial activation and neuroinflammation in the brain of patients with autism. *Ann Neurol.* 2005 Jan;57(1):67-81.
- Vojdani A, Campbell AW, Anyanwu E, Kashanian A, Bock K, Vojdani E. Antibodies to neuron-specific antigens in children with autism: possible cross-reaction with encephalitogenic proteins from milk, Chlamydia pneumoniae and Streptococcus group A. *J Neuroimmunol.* 2002 Aug;129(1-2):168-77.
- Vojdani A, Pangborn JB, Vojdani E, Cooper EL. Infections, toxic chemicals and dietary peptides binding to lymphocyte receptors and tissue enzymes are major instigators of autoimmunity in autism. *International J Immunopathol Pharmacology* 16: 189-199, 2003.
- Vojdani A, O'Bryan T, Green JA, Mccandless J, Woeller KN, Vojdani E, Nourian AA, Cooper EL. Immune response to dietary proteins, gliadin and cerebellar peptides in children with autism. *Nutr Neurosci.* 2004 Jun;7(3):151-61.
- Vojdani A, Bazargan M, Vojdani E, Samadi J, Nourian AA, Eghbalieh N, Cooper EL. Heat shock protein and gliadin peptide promote development of peptidase antibodies in children with autism and patients with autoimmune disease. *Clin Diagn Lab Immunol.* 2004 May;11(3):515-24.
- Wakefield AJ, Walker-Smith JA, Murch SH. Colonic CD8 and gamma delta T-cell infiltration with epithelial damage in children with autism. *Pediatrics* 2001;138:366-72.
- Warren RP, Margaretten NC, Pace NC, Foster A. Immune abnormalities in patients with autism. *J Autism Dev Disord.* 1986 Jun;16(2):189.
- Warren RP, Cole P, Odell JD, Pingree CB, Warren WL, White E, Yonk J, Singh VK. Detection of maternal antibodies in infantile autism. *J Am Acad Child Adolesc Psychiatry.* 1990 Nov;29(6):873-7.
- Warren RP, Foster A, Margaretten NC. Reduced natural killer cell activity in autism. *J Am Acad Child Adolesc Psychiatry.* 1987 May;26(3):333-5.
- Warren RP, Singh VK, Averett RE, Odell JD, Maciulis A, Burger RA, Daniels WW, Warren WL. Immunogenetic studies in autism and related disorders. *Mol Chem Neuropathol.* 1996 May-Aug;28(1-3):77-81.
- Wills S, Cabanlit M, Bennett J, Ashwood P, Amaral D, Van de Water J. Autoantibodies in autism spectrum disorders (ASD). *Ann N Y Acad Sci.* 2007 Jun;1107:79-91.
- Yonk LJ, et al. CD4+ helper T cell depression in autism. *Immunol Lett.* 1990 Sep;25(4):341-5.
- Youseff S, Steinman L. At once harmful and beneficial: the dual properties of NFkB. *Nature Immunology.* 2006; 7(9):901-902

- Zimecki M, Artym J. Therapeutic properties of proteins and peptides from colostrum and milk. *Postepy Hig Med Dosw.* 2005;59:309-23.
- Zimmerman AW, Connors SL, Matteson KJ, Lee LC, Singer HS, Castaneda JA, Pearce DA. Maternal antibrain antibodies in autism. *Brain Behav Immun.* 2006 Oct 5.
- Zimmerman AW, Jyonouchi H, Comi AM, Connors SL, Milstien S, Varsou A, Heyes MP. Cerebrospinal fluid and serum markers of inflammation in autism. *Pediatr Neurol.* 2005 Sep;33(3):195.

Prevalence

- Blaxill MF. What's going on? The question of time trends in autism. *Public Health Reports* 119.6. 536-551 (November 2004)
- Bertrand J et al. Prevalence of autism in a United States population: the Brick township, NJ, investigation. *Pediatrics* 2001; 108: 1155-61.

Genetics and Autism

- Campbell DB, et al. A genetic variant that disrupts MET transcription is associated with autism. *Proc Natl Acad Sci U S A.* 2006 Oct 19.
- Comi AM, Zimmerman AW, Frye VH, Law PA, Peeden JN. Familial clustering of autoimmune disorders and evaluation of medical risk factors in autism. *J Child Neurol.* 1999 Jun;14(6):388-94.
- Gregg JP et al. Gene expression changes in children with autism. *Genomics.* 2008 Jan;91(1):22-29.
- Herbert MR, Russo JP, Yang S et al. Autism and environmental genomics. *Neurotoxicology* 2006; 27(5):671-84.
- Korvatska E, Van de Water J, Anders TF, Gershwin ME. Genetic and immunologic considerations in autism. *Neurobiol Dis.* 2002 Mar;9(2):107-25.
- Molloy CA, et al. Familial autoimmune thyroid disease as a risk factor for regression in children with Autism Spectrum Disorder: a CPEA Study. *J Autism Dev Disord.* 2006 Apr;36(3):317-24.
- Persico AM, et al. Adenosine deaminase alleles and autistic disorder: case-control and family-based association studies. *Am J Med Genet* 2000 Dec 4;96(6):784-90.
- Szatmari P. Heterogeneity and the genetics of autism. *J Psychiatry Neurosci.* 1999 Mar;24(2):159-65.
- Torres AR, Sweeten TL, Cutler A, Bedke BJ, Fillmore M, Stubbs EG, Odell D. The association and linkage of the HLA-A2 class I allele with autism. *Hum Immunol.* 2006 Apr-May;67(4-5):346-51.
- Ueland PM, Hustad S, Schneede J, Refsum H, Vollset SE. Biological and clinical implications of the MTHFR C677T polymorphism. *Trends Pharmacol Sci.* 2001 Apr;22(4):195-201.

Autism and Mitochondria

- Blasi F, Bacchelli E, et al. SLC25A12 and CMYA3 gene variants are not associated with autism in the IMGSAC multiplex family sample. *Eur J Hum Genet* 14(1): 123-6, 2006.
- Clark-Taylor T, Clark-Taylor BE. Is autism a disorder of fatty acid metabolism? Possible dysfunction of mitochondrial beta-oxidation by long chain acyl-CoA dehydrogenase. *Med Hypotheses* 62(6): 970-5.
- Filipek PA, Juranek J, et al. Relative carnitine deficiency in autism. *J Autism Dev Disord* 34(6): 615-23, 2004, 2004.
- Filipek PA, Juranek J, et al. Mitochondrial dysfunction in autistic patients with 15q inverted duplication. *Ann Neurol* 53(6): 801-4, 2003.
- Fillano JJ, Goldenthal MJ, et al. Mitochondrial dysfunction in patients with hypotonia, epilepsy, autism, and developmental delay: HEADD syndrome. *J Child Neurol* 17(6): 435-9., 2002.
- Gargus JJ, Imtiaz F. Mitochondrial energy-deficient endophenotype in autism. *Am J Biochem Biotechnol* 4(2): 198-207, 2008.
- Graf WD, Marin-Garcia J, et al. Autism associated with the mitochondrial DNA G8363A transfer RNA(Lys) mutation. *J Child Neurol* 15(6): 357-61, 2000.
- Lerman-Sagie T, Leshinsky-Silver E, et al. Should autistic children be evaluated for mitochondrial disorders. *J Child Neurol* 19(5): 379-81, 2004.
- Lombard, J. Autism: a mitochondrial disorder? *Med Hypotheses* 50(6): 497-500, 1998.
- Oliveira G, Ataide A, et al. Epidemiology of autism spectrum disorder in Portugal: prevalence, clinical characterization, and medical conditions. *Dev Med Child Neurol* 49(10): 726-33, 2007.
- Oliveira G, Diogo L, et al. Mitochondrial dysfunction in autism spectrum disorders: a population-based study. *Dev Med Child Neurol* 47(3): 185-9, 2005.
- Poling JS, Frye RE, et al. Developmental regression and mitochondrial dysfunction in a child with autism. *J Child Neurol* 21(2): 170-2, 2006.
- Pons R, Andreu AL, et al. Mitochondrial DNA abnormalities and autistic spectrum disorders. *J Pediatr* 144(1): 81-5, 2004.
- Ramos N, Reichert JG, et al. Linkage and association of the mitochondrial aspartate/glutamate carrier SLC25A12 gene with autism. *Am J Psychiatry* 161(4): 662-9, 2004.
- Rossignol DA, Bradstreet JJ. Evidence of mitochondrial dysfunction in autism and implications for treatment. *A J Biochem Biotechnol* 4(2): 208-217, 2008.
- Segurado R, Conroy J, et al. Confirmation of association between autism and the mitochondrial aspartate/glutamate carrier SLC25A12 gene on chromosome 2q31. *Am J Psychiatry* 162(11): 2182-4, 2005.
- Silverman JM, Buxbaum JD, et al. Autism-related routines and rituals associated with a mitochondrial aspartate/glutamate carrier SLC25A12 polymorphism. *Am J Med Genet B Neuropsychiatr Genet*, 2007.
- Trushina E, McMurray CT. Oxidative stress and mitochondrial dysfunction in neurodegenerative diseases. *Neuroscience* 145(4): 1233-48, 2007.
- Tsao CY, Mendell JR. Autistic disorder in 2 children with mitochondrial disorders. *J Child Neurol* 2007; 22(9): 1121-3.

Autism and Oxidative Stress

- Abbott LC, Nahm SS. Neuronal nitric oxide synthase expression in cerebellar mutant mice. *Cerebellum* 2004; 3(3): 141-51.

- Amminger GP, Berger GE, et al. Omega-3 fatty acids supplementation in children with autism: a double-blind randomized, placebo-controlled pilot study. *Biol Psychiatry* 2007; 61(4): 551-3.
- Anderson MP, Hooker BS, et al. Bridging from cells to cognition in autism pathophysiology: biological pathways to defective brain function and plasticity. *A J Biochem Biotechnol* 2008; 4(2): 167-176.
- Bell JG, MacKinlay EE, et al. Essential fatty acids and phospholipase A2 in autistic spectrum disorders. *Prostaglandins Leukot Essent Fatty Acids* 2004; 71(4): 201-4.
- Bell JG, Sargent JR, et al. Red blood cell fatty acid compositions in a patient with autistic spectrum disorder: a characteristic abnormality in neurodevelopmental disorders? *Prostaglandins Leukot Essent Fatty Acids* 2000; 63(1-2): 21-5.
- Bello SC. Autism and environmental influences: review and commentary. *Rev Environ Health* 2007; 22(2): 139-56.
- Beversdorf DQ, Manning SE, et al. Timing of prenatal stressors and autism. *J Autism Dev Disord* 2005; 35(4): 471-8.
- Blaylock, R. Interactions of cytokines, excitotoxins, and reactive nitrogen and oxygen species in autism spectrum disorders. *J Amer Nutr Assoc* 2003; 6: 21-35.
- Boadi WY, Thaire L, et al. Effects of dietary factors on antioxidant enzymes in rats exposed to hyperbaric oxygen. *Vet Hum Toxicol* 1991; 33(2): 105-9.
- Boso M, Emanuele E, et al. Alterations of circulating endogenous secretory RAGE and S100A9 levels indicating dysfunction of the AGE-RAGE axis in autism. *Neurosci Lett* 2006; 410(3): 169-73.
- Chauhan A, Chauhan V. Oxidative stress in autism. *Pathophysiology* 2006; 13(3): 171-81.
- Chauhan A, Chauhan V, et al. Oxidative stress in autism: increased lipid peroxidation and reduced serum levels of ceruloplasmin and transferrin--the antioxidant proteins. *Life Sci* 2004; 75(21): 2539-49.
- Chauhan A, Sheikh A, et al. Increased copper-mediated oxidation of membrane phosphatidylethanolamine in autism. *Am J Biochem Biotechnol* 2008;4(2): 95-100.
- Chauhan V, Chauhan A, et al. Alteration in amino-glycerophospholipids levels in the plasma of children with autism: a potential biochemical diagnostic marker. *Life Sci* 2004; 74(13): 1635-43.
- Chez MG, Buchanan CP, et al. Double-blind, placebo-controlled study of L-carnosine supplementation in children with autistic spectrum disorders. *J Child Neurol* 2002; 17(11): 833-7.
- Corbett BA, Mendoza S, et al. Cortisol circadian rhythms and response to stress in children with autism. *Psychoneuroendocrinology* 2006; 31(1): 59-68.
- Danfors T, von Knorring AL, et al. Tetrahydrobiopterin in the treatment of children with autistic disorder: a double-blind placebo-controlled crossover study. *J Clin Psychopharmacol* 2005; 25(5): 485-9.
- Deth R, Muratore C, et al. How environmental and genetic factors combine to cause autism: A redox/methylation hypothesis. *Neurotoxicology* 2008; 29(1): 190-201.
- Dolske MC, Spollen J, et al. A preliminary trial of ascorbic acid as supplemental therapy for autism. *Prog Neuropsychopharmacol Biol Psychiatry* 1993; 17(5): 765-74. 1.
- Evans TA, Siedlak SL, et al. The autistic phenotype exhibits a remarkably localized modification of brain protein by products of free radical-induced lipid oxidation. *Am J Biochem Biotechnol* 2008; 4(2): 61-72.
- Gargus JJ, Imtiaz F. Mitochondrial energy-deficient endophenotype in autism. *Am J Biochem Biotechnol* 2008; 4(2): 198-207.
- Jackson MJ, Garrod PJ. Plasma zinc, copper, and amino acid levels in the blood of autistic children. *J Autism Child Schizophr* 1978; 8(2): 203-8.
- James SJ, Cutler P, et al. Metabolic biomarkers of increased oxidative stress and impaired methylation capacity in children with autism. *Am J Clin Nutr* 2004;80(6): 1611-7.
- James SJ, Melnyk S, et al. Metabolic endophenotype and related genotypes are associated with oxidative stress in children with autism. *Am J Med Genet B Neuropsychiatr Genet* 2006;141(8): 947-56.
- Johannesson T, Kristinsson J, et al. [Neurodegenerative diseases, antioxidant enzymes and copper. A review of experimental research.]. *Laeknabladid* 2003; 89(9): 659-671.
- Johnson, S. Micronutrient accumulation and depletion in schizophrenia, epilepsy, autism and Parkinson's disease? *Med Hypotheses* 2001; 56(5): 641-5.
- Jory J, McGinnis WR. Red-cell trace minerals in children with autism. *Am J Biochem Biotechnol* 2008; 4(2): 101-104.
- Junaid MA, Kowal D, et al. Proteomic studies identified a single nucleotide polymorphism in glyoxalase I as autism susceptibility factor. *Am J Med Genet A* 2004; 131(1): 11-7.
- Kern JK, Jones AM. Evidence of toxicity, oxidative stress, and neuronal insult in autism. *J Toxicol Environ Health B Crit Rev* 2006; 9(6): 485-99.
- Kinney DK, Miller AM, et al. Autism prevalence following prenatal exposure to hurricanes and tropical storms in Louisiana. *J Autism Dev Disord* 2008; 38(3): 481-8.
- López-Hurtado E, Prieto JJ. A microscopic study of language-related cortex in autism. *Am J Biochem Biotechnol* 2008; 4(2): 130-145.
- MacFabe DF, Cain DP, et al. Neurobiological effects of intraventricular propionic acid in rats: possible role of short chain fatty acids on the pathogenesis and characteristics of autism spectrum disorders. *Behav Brain Res* 2007;176(1): 149-69.
- MacFabe, DF, Rodríguez-Capote K, et al. A novel rodent model of autism: intraventricular infusions of propionic acid increase locomotor activity and induce neuroinflammation and oxidative stress in discrete regions of adult rat brain. *Am J Biochem Biotechnol* 2008; 4(2): 146-166.
- McGinnis WR. Oxidative stress in autism. *Altern Ther Health Med* 2004; 10(6): 22-36; quiz 37, 92.
- McGinnis WR. Oxidative stress in autism. *Altern Ther Health Med* 2005; 11(1): 19.
- McGinnis WR. Could oxidative stress from psychosocial stress affect neurodevelopment in autism? *J Autism Dev Disord* 2007; 37(5): 993-4.
- Miller DM, Woods JS. Urinary porphyrins as biological indicators of oxidative stress in the kidney. Interaction of mercury and cephaloridine. *Biochem Pharmacol* 1993; 46(12): 2235-41.
- Ming X, Cheh MA, et al. Evidence of oxidative stress in autism derived from animal models. *Am J Biochem Biotechnol* 2008; 4(2): 218-225.

- Ming X, Stein TP, et al. Increased excretion of a lipid peroxidation biomarker in autism. *Prostaglandins Leukot Essent Fatty Acids* 2005; 73(5): 379-84.
- Mutter J, Naumann J, et al. Mercury and autism: accelerating evidence? *Neuro Endocrinol Lett* 2005; 26(5): 439-46.
- Nataf E, Skorupka C, et al. Porphyrinuria in childhood autistic disorder: implications for environmental toxicity. *Toxicol Appl Pharmacol* 2006; 214(2): 99-108.
- Ng F, Berk M, et al. Oxidative stress in psychiatric disorders: evidence base and therapeutic implications. *Int J Neuropsychopharmacol* 2008; 1-26.
- Pardo CA, Eberhart CG. The neurobiology of autism. *Brain Pathol* 2007; 17(4): 434-47.
- Pasca SP, Nemes B, et al. High levels of homocysteine and low serum paraoxonase 1 arylesterase activity in children with autism. *Life Sci* 2006; 78(19): 2244-8.
- Poling JS, Frye RE, et al. Developmental regression and mitochondrial dysfunction in a child with autism. *J Child Neurol* 2006;21(2): 170-2.
- Rose S, Melnyk S, et al. The frequency of polymorphisms affecting lead and mercury toxicity among children with autism. *Am J Biochem Biotechnol* 2008; 4(2): 85-94.
- Ross M. A. Could oxidative stress be a factor in neurodevelopmental disorders? *Prostaglandins Leukot Essent Fatty Acids* 2000; 63(1-2): 61-3.
- Rossignol DA. Hyperbaric oxygen therapy might improve certain pathophysiological findings in autism. *Med Hypotheses* 2007; 68(6): 1208-27.
- Rossignol DA, Bradstreet JJ. Evidence of mitochondrial dysfunction in autism and implications for treatment. *Am J Biochem Biotechnol* 2008; 4(2): 208-217.
- Rossignol DA, Rossignol LW. The effects of hyperbaric oxygen therapy on oxidative stress, inflammation, and symptoms in children with autism: an open-label pilot study. *BMC Pediatr* 2007; 7(1): 36.
- Sajdel-Sulkowska EM, Lipinski B, et al. Oxidative stress in autism: elevated cerebellar 3-nitrotyrosine levels. *Am J Biochem Biotechnol* 2008; 4(2): 73-84.
- Sierra C, Vilaseca MA, et al. Oxidative stress in Rett syndrome. *Brain Dev* 2001; 23 Suppl 1: S236-9.
- Sogut S, Zoroglu SS, et al. Changes in nitric oxide levels and antioxidant enzyme activities may have a role in the pathophysiological mechanisms involved in autism. *Clin Chim Acta* 2003; 331(1-2): 111-7.
- Sokol DK, Chen D, et al. High levels of Alzheimer beta-amyloid precursor protein (APP) in children with severely autistic behavior and aggression. *J Child Neurol* 2006; 21(6): 444-9.
- Suh JH, Walsh WJ, et al. Altered sulfur amino acid metabolism in immune cells of children diagnosed with autism. *Am J Biochem Biotechnol* 2008; 4(2): 105-113.
- Sweeten TL, Posey DJ, et al. High blood monocyte counts and neopterin levels in children with autistic disorder. *Am J Psychiatry* 2003; 160(9): 1691-3.
- Sweeten TL, Posey DJ, et al. High nitric oxide production in autistic disorder: a possible role for interferon-gamma. *Biol Psychiatry* 2004; 55(4): 434-7.
- Torsdottir G, Hreidarsson S, et al. Ceruloplasmin, superoxide dismutase and copper in autistic patients. *Basic Clin Pharmacol Toxicol* 2005; 96(2): 146-8.
- Trushina E, McMurray CT. Oxidative stress and mitochondrial dysfunction in neurodegenerative diseases. *Neuroscience* 2007; 145(4): 1233-48.
- Williams TA, Mars AE, et al. Risk of autistic disorder in affected offspring of mothers with a glutathione S-transferase P1 haplotype. *Arch Pediatr Adolesc Med* 2007; 161(4): 356-61.
- Yao Y, Walsh WJ, et al. Altered vascular phenotype in autism: correlation with oxidative stress. *Arch Neurol* 2006; 63(8): 1161-4.
- Yorbik O, Akay C, et al. Zinc status in autistic children. *J Trace Elem Exp Med* 2004; 17(2): 101-107.
- Yorbik O, Sayal A, et al. Investigation of antioxidant enzymes in children with autistic disorder. *Prostaglandins Leukot Essent Fatty Acids* 2002; 67(5): 341-3.
- Zoroglu SS, Armutcu F, et al. Increased oxidative stress and altered activities of erythrocyte free radical scavenging enzymes in autism. *Eur Arch Psychiatry Clin Neurosci*. 2004; 254(3): 143-7.
- Zoroglu SS, Yurekli M, et al. Pathophysiological role of nitric oxide and adrenomedullin in autism. *Cell Biochem Funct* 2003; 21(1): 55-60.