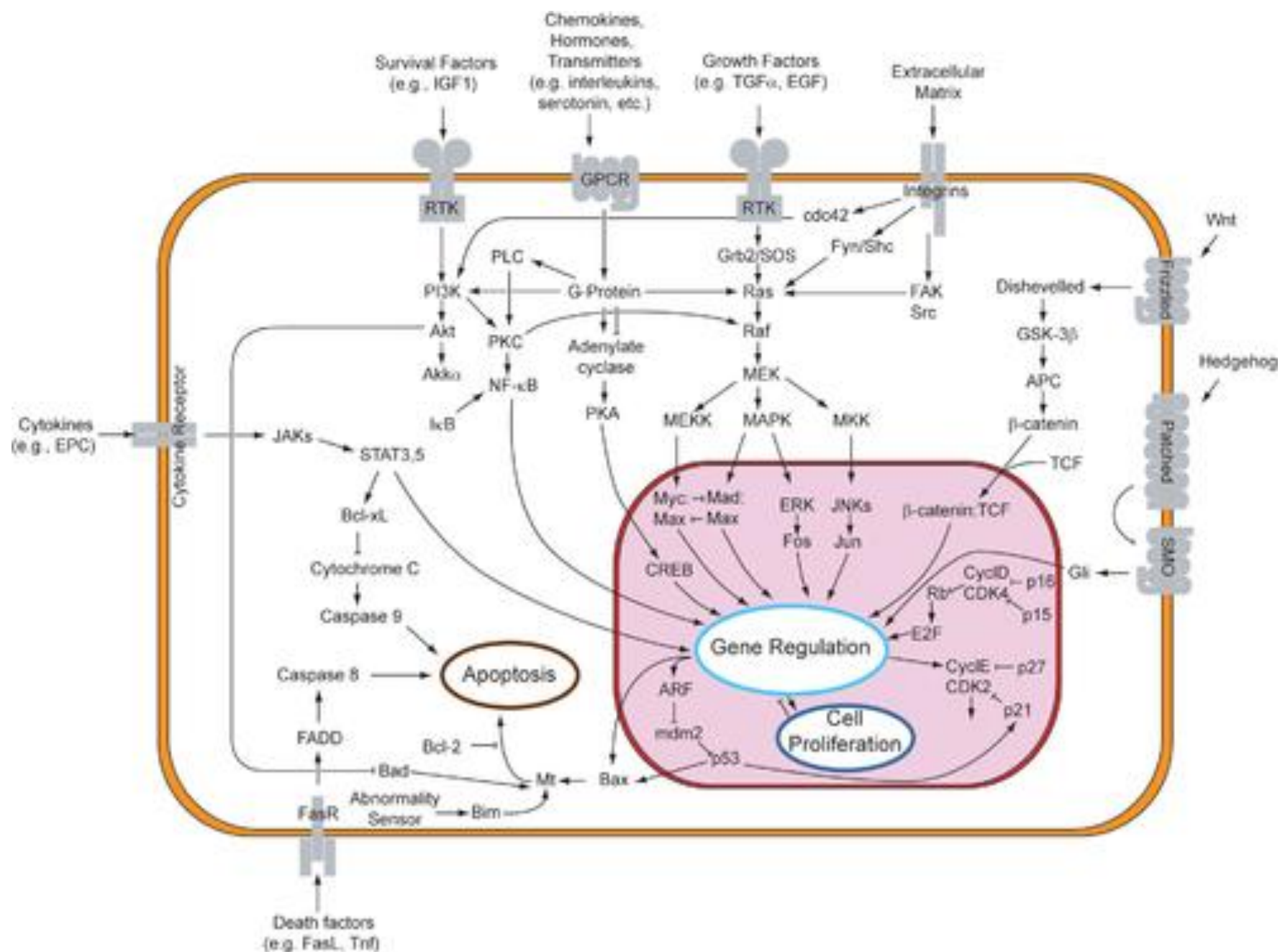


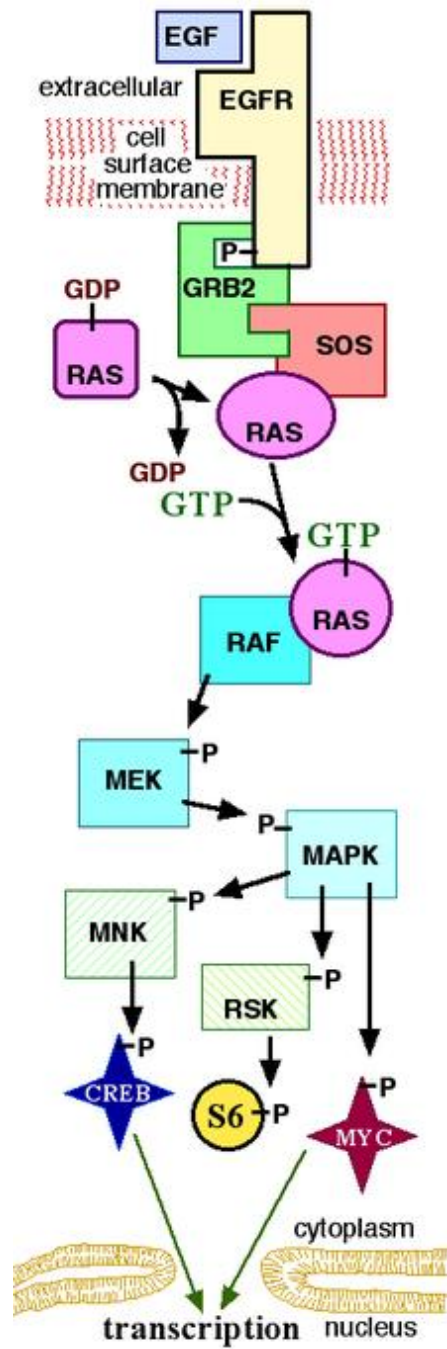
# Autism and Cell Biology

D. Klinghardt MD, PhD

# Health and life

- What determines our health and vitality is the quality and quantity of the activity of our metabolic enzymes. The intelligent part of an enzyme is a protein
- Each protein has several possible spatial configurations: each determines its metabolic activity and the nature of its work
- Genes are only the building plan for enzymes (the protein portion of enzymes) but do not have their own intelligence. They are not self-regulated.
- We have a little over 25 000 genes, and over 100 000 proteins (exact number is still unknown)
- In autism research much of the current research is the investigation of genetic errors
- It appears that ASD children may have a higher number of polymorphisms but no specific ones. Children with the same polymorphisms, but less in number, are healthy
- Most genes have back-up genes, that can be activated if the primary gene is failing
- If a gene is imperfect: most proteins can be constructed with the epigenetic activation of the transcription of back-up genes
- Some proteins are constructed with the information from several genes, some of which are interchangeable
- Inactive genes are coated with proteins and methyl groups
- Internal signals from the cell wall determine the shape of the protein and the switching on/off of the genes (signaling pathways)
- There are 3 types of external signals (= signals that relate accurate information about the cell's outer environment to the cell, so it can adjust its behavior) that determine our life: 1. signaling molecules 2. physics fields (EM, gravity, strong force, weak force) 3. higher fields: emotional and mental fields, ancestral and transpersonal fields





Autism can be explained by what we already know:

- genes are improperly transcribed, activated or inactivated by poor **signals** at the cell wall level or internal signals reaching the intracellular proteins (enzymes and epigenome)
- some genes may be defective (deletion, polymorphism, mutation, etc.), and the **signals** to the back-up genes or epigenetic repair-mechanisms are not getting there
- we have over 100 000 proteins – our metabolic enzymes. Each can fold in several hundred different ways, changing the enzyme's behavior and biological function. **Signals from the environment** are responsible for the shape shifting and the resulting behavior of the cell
- Autism is an illness of faulty, missing or illness-inducing signals and/or faulty perception of healthy signals
- Autism can be healed by optimizing the environmental signals, even if there are genetic imperfections

**What signals can be used to help turn on missing genes, regulate and optimize functioning genes and Silence defective genes – and help the autistic child recover?**

## **A. Molecules (Substance)**

**1. Circulating molecules:** [hormones \(e.g., melatonin\)](#), [growth factors \(e.g. epidermal growth factor\)](#), [extra-cellular matrix components \(e.g., fibronectin\)](#), [cytokines \(e.g., interferon-gamma\)](#), [chemokines \(e.g., RANTES\)](#), [neurotransmitters \(e.g., acetylcholine\)](#), [neurotrophins \(e.g., nerve growth factor\)](#), [active oxygen species \(redox signaling\)](#), [fatty acids](#), [biotoxins \(from infectious agents\)](#), [nutrients](#)

**Therapy: the biomedical approach**

**2. Molecules released at the cell wall by the autonomic nervous system** (neuropeptides)- a response to perceptions, emotions, thought and general stress levels

**Therapy: energy psychology, family constellation work, prayer, holding therapy**

## **B. Physics (Fields)**

### **1. Vibration** (also touch, smell, sound, visual input):

Vibrational Force Alters mRNA Tjandrawinata, R.R.; Vincent, V.L. and Hughes- Fulford, M. (1997).

**Therapy: touch and breath therapies, floor time, movement, sound, color, smell, Gordon-Pomares**

### **2. Electromagnetic fields**

Mechanism of a short-term ERK activation by electromagnetic fields at mobile phone frequency

Biochem J. 2007 Apr 25 [Friedman J](#), [Kraus S](#), [Hauptman Y](#), [Schiff Y](#), [Seger R](#).

Non-thermal activation of the hsp27/p38MAPK stress pathway by mobile phone radiation in Human endothelial cells: molecular mechanism for cancer- and blood brain barrier-related Effects Differentiation. 2002 May;70(2-3):120-9

[Leszczynski D](#), [Joenvaara S](#), [Reivinen J](#), [Kuokka R](#).

**Therapy: EMF mitigation. Use the Soobiah CES unit daily**

# Autism Theories

## **Genetic polymorphisms, gene deletions and mutations**

Recent advances in the genetics of autism.

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[Metabolic endophenotype and related genotypes are associated with oxidative stress in children with autism.](#)

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[Abnormal transmethylation/transsulfuration metabolism and DNA hypomethylation among parents of children with autism.](#) James SJ, Melnyk S, Jernigan S, Hubanks A, Rose S, Gaylor DW.

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[Efficacy of methylcobalamin and folic acid treatment on glutathione redox status in children with autism.](#)

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[Cellular and mitochondrial glutathione redox imbalance in lymphoblastoid cells derived from children with autism.](#) James SJ, Rose S, Melnyk S, Jernigan S, Blossom S, Pavliv O, Gaylor DW.

FASEB J. 2009 Aug;23(8):2374-83.

**Therapy: BioMedical Approach (Gill James, Amy Yasko, Richard Deth)**

- **Elevated androgens**

Fetal testosterone and sex differences in typical social development and in autism.

J Child Neurol. 2006 Oct;21(10):825-45. Knickmeyer RC, Baron Cohen S.

Elevated rates of testosterone-related disorders in women with autism spectrum

conditions. Horm Behav. 2007 May;51(5):597-604. Epub 2007 Feb 8. Wheelwright S et al

Sex differences in the brain: Implications for explaining autism. Science 310(5749):

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A prospective assessment of androgen levels in patients with autistic spectrum disorders:

Biochemical underpinnings and suggested therapies. Geier DA, Geier MR (2007)

Neuroendocrinology Letters 28(5): 565 - 573.

Foetal testosterone, social relationships, and restricted interests in children.

Knickmeyer R, Baron-Cohen S, Raggatt P, Taylor K (2005)

J Child Psychol Psychiatry 46(2): 198–210.

**Therapy: Mark and David Geier Lupron protocol, high dose Vit A (plus D),  
Homeopathic high potency testosterone and DHEA (BioPure) for downregulation**

## **Infections aquired intra-uterine or post partum** (Lyme, mycoplasma, herpes viruses, XMRV)

Evidence for Mycoplasma, Chlamydia pneumoniae and HHV-6 Co-infections in the blood of patients with Autism Spectrum Disorders.

J Neuroscience Res 2007; 85:1143-1148.

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Chronic infections in neurodegenerative and neurobehavioral diseases.

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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 54(6): 901 - 911.

Shultz SR, MacFabe DF, Ossenkopp K-, Scratch S, Whelan J, et al. (2008)

The association between tick-borne infections, Lyme borreliosis and autism spectrum disorders

Robert C. Bransfield, Jeffrey S. Wulfman , William T. Harvey, Anju I. Usman

Med Hypotheses (Sept 2007), doi:10.1016/j.mehy.2007.09.006

**Therapy: Klinghardt Lyme cocktail (KLC)**

## **Metal toxicity** (thimerosal, lead, mercury)

Mercury and Autism: Accelerating Evidence Joachim Mutter  
Neuroendocrinol Lett 2005; 26 (5): 439-446,

[Thimerosal neurotoxicity is associated with glutathione depletion: protection with glutathione precursors.](#)

James SJ, Slikker W 3rd, Melnyk S, New E, Pogribna M, Jernigan S. Neurotoxicology. 2005 Jan;26(1):1-8.

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Journal of Toxicology and Environmental Health, Part A, 73: 10, 637 — 640,  
Austin, David W. , Shandley, Kerrie A. andPalombo, Enzo A.(2010)

[Environment, mercury and autism](#)

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[Mercury induces inflammatory mediator release from human mast cells](#)

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J Neuroinflammation. 2010 Mar 11;7(1):20.

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'Porphyrinuria in Korean Children with Autism: Correlation with Oxidative Stress',  
Journal of Toxicology and Environmental Health, Part A, 73: 10, 701 — 710  
Seung-II , Jin, Soo-Hee , Kim, Sung-Hoon andLim, Sabina(2010)

Assessment of chronic mercury exposure within the U.S. population, National Health and Nutrition Examination Survey, 1999-2006. Laks DR Biometals. 2009 Aug 21. <http://www.ncbi.nlm.nih.gov/pubmed/19697139>

**Therapy: Klinghardt Lyme cocktail (Phospholipid Exchange, MicroSilica, OSR, chlorella, CGF, cilantro)**

# Electromagnetic Fields and Autism

A possible association between fetal/neonatal exposure to radiofrequency electromagnetic radiation and the increased incidence of Autism Spectrum Disorders (ASD).  
Medical Hypotheses 62, 195.-197, Kane RC. 2004

Wireless Radiation in the Etiology and Treatment of Autism: Clinical Observations and Mechanisms. J Aust. Coll. Nutr. & Env. Med. Vol 26 (2), 3-7.  
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Mechanism of a short-term ERK activation by electromagnetic fields at mobile phone frequency  
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Melatonin protects against mercury induced oxidative tissue damage  
Basic and Clinical Pharmacology&Toxicology Vol 93, Dec 2003, pp 290-296 Sener, G.et al

Increased risk of senile dementia and motor neuron diseases (ALS) may be associated with an above average level of electromagnetic field exposure  
Epidemiology. 2000 Sep;11(5):539-43

Electromagnetic field effects: changes in protein phosphorylation in the Jurkat E6.1 cell line.  
[Wetzel BJ](#), [Nindl G](#), [Vesper DN](#), [Swez JA](#), [Jasti AC](#), [Johnson MT](#). Biomed Sci Instrum. 2001;37:203-8.

Extremely low frequency electromagnetic fields as effectors of cellular responses in vitro: possible immune cell activation.  
[Simkó M](#), [Mattsson MO](#). J Cell Biochem. 2004 Sep 1;93(1):83-92.

Induction of cell activation processes by low frequency electromagnetic fields.  
[Simkó M](#). ScientificWorldJournal. 2004 Oct 20;4 Suppl 2:4-22.

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[Simkó M](#), [Mattsson MO](#). J Cell Biochem. 2004 Sep 1;93(1):83-92.

[Effects of 50 Hz magnetic fields on gene expression in MCF-7 cells](#)

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[Expression of cancer-related genes in human cells exposed to 60 Hz magnetic fields.](#)

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[Effects of electromagnetic noise on the enhancement of stress-activated protein kinase\(SAPK\) phosphorylation induced by 50 Hz magnetic fields](#) Sun W, Chiang H, Fu Y, Lu D, Xu Z. Zhonghua Lao Dong Wei Sheng Zhi Ye Bing Za Zhi. 2002 Aug;20(4):246-8.

[50-Hz magnetic field induces EGF-receptor clustering and activates RAS.](#)

Ke XQ, Sun WJ, Lu DQ, Fu YT, Chiang H. Int J Radiat Biol. 2008 May;84(5):413-20.

[Magnetic fields \(MF\) of 50 Hz at 1.2 microT as well as 100 microT cause uncoupling of inhibitory pathways of adenylyl cyclase mediated by melatonin 1a receptor in MF-sensitive MCF-7 cells.](#)

Ishido M, Nitta H, Kabuto M. Carcinogenesis. 2001 Jul;22(7):1043-8.

**Therapy: daytime: no wireless, no chordless phone, use CES (Soobiah)**

**Nighttime: switch off all fuses, sleep sanctuary (Eve Greenberg)**

- **Vaccine induced damage**

Hepatitis B triple series vaccine and developmental disability in US children aged 1-9 years  
Gallagher C, Goodman M. Toxicol Environ Chem 2008 90(5):997-1008.  
[http://fourteenstudies.org/pdf/hep\\_b.pdf](http://fourteenstudies.org/pdf/hep_b.pdf)

“Boys who received the hepatitis B vaccine during the first month of life had 2.94 greater odds for ASD compared to later- or unvaccinated boys.”

J Ann of Epidemiology, Sept 2009. C.Gallagher and M. Goodman

[Biochemical and molecular basis of thimerosal-induced apoptosis in T cells: a major role of mitochondrial pathway.](#)

Makani S, Gollapudi S, Yel L, Chiplunkar S, Gupta S.  
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[Thimerosal induces neuronal cell apoptosis by causing cytochrome c and apoptosis-inducing factor release from mitochondria.](#)

Yel L, Brown LE, Su K, Gollapudi S, Gupta S.  
Int J Mol Med. 2005 Dec;16(6):971-7.

[Homozygous gene deletions of the glutathione S-transferases M1 and T1 are associated with thimerosal sensitization.](#)

Westphal GA, Schnuch A, Schulz TG, Reich K, Aberer W, Brasch J, Koch P, Wessbecher R, Szliska C, Bauer A, Hallier E.  
Int Arch Occup Environ Health. 2000 Aug;73(6):384-8.

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Müller M, Westphal G, Vesper A, Bünger J, Hallier E.  
Int J Hyg Environ Health. 2001 Jul;203(5-6):479-81.

[Mitochondrial mediated thimerosal-induced apoptosis in a human neuroblastoma cell line \(SK-N-SH\).](#)

Humphrey ML, Cole MP, Pendergrass JC, Kiningham KK.  
Neurotoxicology. 2005 Jun;26(3):407-16.

**Therapy: OSR. Laser detox, high dose Vit A: 100 000iu quid for 2 days, repeat a few times after 6-12 weeks, homeopathy (Thuja, nosodes, constitutional)**

# Epigenetic programming by maternal behavior

Ian C G Weaver, Nadia Cervoni, Frances A Champagne, Ana C D'Alessio, Shakti Sharma,  
Jonathan R Seckl, Sergiy Dymov, Moshe Szyf & Michael J Meaney

Here we report that increased pup licking and grooming (LG) and arched-back nursing (ABN) by Rat mothers altered the offspring epigenome at a glucocorticoid receptor (GR) gene promoter in the hippocampus. Offspring of mothers that showed high levels of LG and ABN were found to have ***differences in DNA methylation***, as compared to offspring of 'low-LG-ABN' mothers. These differences emerged over the first week of life, were reversed with cross fostering, persisted into adulthood and were associated with altered histone acetylation and transcription factor (NGFI-A) binding to the GR promoter. Central infusion of a histone deacetylase inhibitor removed the group differences in histone acetylation, DNA methylation, NGFI-A binding, GR expression and hypothalamic-pituitary-adrenal (HPA) responses to stress, suggesting a causal relation among epigenomic state, GR expression and the maternal effect on stress responses in the offspring. Thus we show that an epigenomic state of a gene can be established through behavioral programming, and it is potentially reversible

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**Therapy: use homeopathic oxytocin 6X (or energetically tested other dilution),  
craniosacral work and holding therapy**

## Gravity affects over 80 genes

Hughes-Fulford M. (2003). Function of the cytoskeleton in gravisensing during spaceflight. Adv Space Res. 32(8): 1585-93

Hatton JP, Gaubert F, Cazenave JP, Schmitt D.(2002). Microgravity modifies protein kinase C isoform translocation in the human monocytic cell line U937 and human peripheral blood T-cells. J Cell Biochem. 87(1):39-50.

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Millie Hughes-Fulford, (2002) Changes in gene expression in signal transduction in microgravity, Journal of Gravitational Physiology, P1-4

Hughes-Fulford, Millie, Raymond Tjandrawinata, Jamie Fitzgerald, Kimberly Gasuad and Vicki Gilbertson. (1999) Effect of microgravity on osteoblast growth activation: Analysis of transcription, translation and morphology on STS Biorack on Spacehab, by Brinkmann and Brillouet. ed: M. Perry European Space Agency ISBN 92-9092-484-5

Hughes-Fulford, Millie and Vicki Vincent. (1998) Effects of microgravity on osteoblast growth. *ASGSB Bulletin* vol. 11(2), 51-60

Key gravity-sensitive signaling pathways drive T-cell Activation J. B. Boonyaratanakornkit, A. Cogoli, C.-F. Li, T. Schopper, P. Pippia, G. Galleri, M. A. Meloni, and M. Hughes-Fulford  
*The FASEB Journal express article 10.1096/fj.05-3778fje. Published online October 6, 2005.*

**Therapy: rock the child and sing, use a swing**

## A few therapeutic tips

- [www.klinghardt.org](http://www.klinghardt.org)
- [www.thriiive.com](http://www.thriiive.com)

# The right water

This may be the most important item in ASD treatment.

- The ASD child goes through cycles and biorhythms of acidity and alkalinity: adjust the water accordingly
- Minerals alkalinize, detox agents acidify
- Measure the saliva and urine pH often Normals: saliva 6.7 (+/-0.2), urine 6.2 (+/-0.2)
- Use RO system ([www.freeDrinkingWater.com](http://www.freeDrinkingWater.com))
- 1 quart water, add:
  - ✓ 2 tbsp ionic minerals (MicroMinerals)
  - ✓ 2 tbsp Matrix Electrolyte (or in communicating child: add more, until ever so slight salty taste)
  - ✓ M-water 1 cap (micro structure)
  - ✓ Tri salts: 1 tsp (alkalinizing)
  - ✓ organic coconut juice (1/4<sup>th</sup> -1/8<sup>th</sup> of content)
  - ✓ if available: add SOE energy from Valkion
- Rub 5 drops BioSil (ortho silicic acid) into the soles of the feet at bedtime ( restores healthy tubulin structure and matrix organization)

## **Type III diabetes theory of autism**

- Insulin is needed to feed the brain cells with glucose – its responsible for the metabolic activity in the brain. Insulin is also needed for maturing, sprouting, pruning and organizing the neuronal network of the brain. Disturbance of the insulin receptor, insulin resistance and other issues leads to failure of the system. Common result: high ammonia levels in brain, glutamate toxicity, elevation of TNF-alpha and IL-6, structural abnormalities, and others.
- Solution: D-galactose ( a mono-sugar), 4 grams twice daily in water
- Research: Prof. Werner Reutter PhD, Charitee, Berlin

## Galactose Reference List

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## **Making an immune regulating Autonosode (use saliva, urine or stool)**

### **Materials needed:**

0.5 or 1.0 ounce dropper bottle

Distilled water

Tongue scraper

Vodka

### **Instructions:**

Collect the material from a tongue scraping and some nasal mucus in a dropper bottle. Add just enough water to make the mucus thin enough to pour into the dropper bottle. This “mother” tincture should take up 1/6 of the dropper bottle.

Add 5 parts water to this 1 part of “mother” tincture to fill the dropper bottle.

Tap the bottle 50 times by hitting the bottom firmly against your palm.

This preparation is called N1.

Empty out 5/6 of the fluid in the bottle and discard. Add fresh water to the remaining 1/6 fluid and again tap the bottle 50 times.

This preparation is called N2.

Continue to empty 5/6 of the bottle and fill the remainder with fresh water two more times until you get an N4 dilution.

In the N4 dilution, add 2 parts Vodka and 3 parts water. This will act as a preservative for the remedy.

Now you have a N5 dilution. Discard 5/6 of this dilution and fill the remainder with fresh water. You will use this N6 dilution as your medicine.

Take 4 drops of the N6 dilution under your tongue every hour until there is only 1/6 of the fluid remaining. Fill the remainder of the bottle with fresh water and tap 50 times.

Take 4 drops of this N7 dilution every hour until only 1/6 of the fluid remains.

Repeat the process of filling the remainder with water and tapping 50 times each time you use 5/6 of the remedy.

Continue this process until you are well.

**Alternative: [Allergie-Immun.de](http://Allergie-Immun.de)**

- **Phospholipid Exchange (PLE from BioPure):** This contains naturally extracted powerful phospholipids (phosphatidyl serine, choline, and others), magnesium, alpha-lipoic acid and Na-EDTA. This magical mix encourages the “reverse cholesterol transport” (taking deposits out of endothelium), has a strong anti-microbial effect, breaks open microbial biofilm and removes biotoxins (including mold mycotoxins, mercury and Lyme-related toxins) from the extracellular matrix and the cell wall and from inside the cell as well. PLE crosses the blood brain barrier and is capable of removing toxins from the brain and carrying EDTA, lipoic acid and magnesium into the brain. The effect is comparable to the intravenous injection of Lipostabil.
- Long term results are dramatic especially in the treatment of Lyme related brain problems (i.e. treating disturbed microcirculation of the frontal lobe of the brain). Phospholipids have a profound synergistic effect with herbs, facilitating their absorption and distribution into the matrix and beyond. PLE can be used to create liposomal compounds (VitC, artemisinin, etc.)

- **Quinolinic acid (Quin):** potent neurotoxin. Spirochetes induce microglia of brain (4% of brain mass) to convert tryptophane into this compound. Elevated in chronic neuroborreliosis in CSF. In brain tissue 10 times increased over CNS level. Potent synergistic effect with ROS (Lyme spirochetes are potent ROS inducers. ROS are used by macrophags and other white cells to kill spirochetes)
- Quin-effects:
  - interference with neurotransmitter production
  - damage to synaptic connections
  - brain atrophy/cerebral volume loss
  - neuronal death

# QUIN Treatment

- chlorella and CGF in high doses (BioPure)
- Cilantro and Detox foot bath
- Mucuna Powder (BioPure), MicroSilica, OSR
- zinc: prevents hippocampal damage from QUIN (HPU treatment, “**Core**”)
- copper (at low doses) reduces striatal GABA depletion and blocks oxidative injury to neurons use combination 30 mg zinc picolinate with 2 mg copper
- **Resveratrol** from Japanese Knotweed (in combination with other synergistic herbs: Quintessence)
- **Phospholipid Exchange**
- Lymphatic drainage (Quintessence) and colon hydrotherapy

# Gossypol: anti-androgenic substance

## effect:

- Dysregulation of androgen regulating genes
- fatigue and low sex drive – or excessive sexual behaviour/premature development
- immune system fatigue
- adrenal fatigue

## Treatment:

- Smilax (sarsaparilla): 500 mg caps : 1-3 caps t.i.d.
- David and Mark Geier Lupron treatment
- Moderate exercise as soon as possible

# The Ingredients of BioPure Quintessence

## 5 energized herbs, used in the treatment of ASD

### 1. **Polygonum cuspidatum** (Japanese Knotweed)

Peer review literature/Science

- *Highest amount of **Resveratrol** in any plant (more than red grapes)*

Effective against:

- **Leptospirosis**
- **Treponema denticola** (spirochets in oral flora)
- **Bartonella** (Buhner)
- **Borrelia**
- Many gram neg and gram pos bacteria
- Anti-viral
- Hep B and C

- High content of resveratrol increases microcirculation (vasodilation and
- inhibits platelet aggregation: pos effect on eye,
- heart, skin (ideal synergist)
- **Lowers cholesterol and lipids**
- Increases wound healing
- Angiogenesis modulator
- Crosses blood brain barrier: anti-inflammatory, antimicrobial, protects
- against microbial **endotoxins**

## 2. Andrographis paniculata

Published science:

- rapid excretion via kidneys
- **anti-spirochetal**
- crosses blood brain barrier
- protects heart muscle
- anti-inflammatory
- calming
- potent modulating effect on mast cell and neutrophil activity: turns off inappropriate mast-cell allergic reactions in tissue
- enhances liver function
- significant **protective** effects against inflammation-mediated
- **neurodegeneration** of brain, spinal chord and CSF
- Andrographis
- filaria
- leptospirosis
- malaria (suggesting strong effect against Babesia)
- decreases heart muscle damage after MI
- Hep A and B
- tuberculosis
- tonsillitis
- pneumonia
- snake bites
- e.coli
- **herpes viruses**
- mumps
- **periodontal bacteria** (gum disease)
- AIDS
- cancers: prostate breast colon anal stomach skin melanoma leukemia

### 3. Smilax glabra (Sarsaparilla)

Peer review literature/Science

- effective against:
- Leptospirosis
- Treponema pallidum (syphilis)
- liver flukes (clonorchis sinensis)
- trypanosome
- shigella and salmonella (common in chronic Lyme)
- leprosy and TB
- fungal skin infections
- Smilax
- other published results:
- Lyme endotoxin binding
- Lessens Herxheimer reactions
- Improvement in **mental and psychological** parameters in chronic syphilis
- Modulates immune responses
- **Arthritis** anti-inflammatory
- **Psoriasis** and eczema
- Neuroprotective (crosses blood brain barrier)
- Reduces skin breakdown
- Pain relief
- Improves liver function
- Lessens **fatigue**
- Increases libido
- Asthma, hay fever, rhinitis
- **Cervical spondylosis** (Lyme related disc degeneration and facet joint arthritis)
- Chronic **liver** disease (dramatic) including Hep C
- Reversal of **cognitive impairment**
- Autoimmune dysregulation
- Protects from androgen dysregulating substances in Lyme (i.e. gossypol)

## 4. Stephania Root (*Stephania tetrandra* and *S.cepharantha*)

Peer review literature/Science:

- Potent anti-inflammatory
- Alopecia
- Radiation injury (leukemia)
- Asthma
- Induces IL-1 beta, IL-alpha, TNF-a, IL-6, IL-8 (especially in CNS and joints)
- **Reduces NF-kappa B and IL-6 during neuroborreliosis**
- Modulates HLA-DR expression (Lyme arthritis connected to CD3 generated HLA-DR alleles)
- Treatment of silicosis (also breast implant immune complications)
- Protects endothelium from endotoxin damage
- Reduces vascular permeability
- Bell's palsy
- Free radical scavenger
- **Inhibits toxic glutamate levels in brain**
- Ca-channel blocker
- Stephania
- Asthma and heart disease
- Retinopathy (modulates formation of new blood vessels and improvement of vision)
- Malaria (and **Babesia**)
- Inhibits cancer cell proliferation
- Anti-fibrotic/anti-scar formation
- Blocks abnormal histamine release/stabilizes mast cells

## 5. Red Root and synergistic herbals

- Enzymatically breaks down proteins and macro-molecules inside lymphatic channels
- strong anti-microbial agent acting inside the lymphatic channels
- Strong localized anti-viral effects
- Dilates lymphatic channels
- Creates chemotactic effects inside lymph (attracts macrophages)
- Regenerative effects to damaged lymphatic tissues
- Tonsillar drainage
- General **lymphatic drainage and repair**

## Other Tools of the Trade

- Cranial Electric Stimulation: CES  
From V.Soobiah 323-816 6094
- Sleep sanctuary, green laser:  
Eve Greenberg 303-499 4799
- Non-toxic toothpaste: periopaste  
425 462 8414
- Valkion, K-Sweep, KMT microcurrent  
Dietlinde Buschbeck  
011-41- 227 989 464 fax 227 989 454
- Renzo's healing waters: 425 823 8818 or 011 49 177  
4045 311