

Toxic & Essential Elements; Hair

TOXIC METALS				PERCENTILE	
		RESULT µg/g	REFERENCE INTERVAL	68 th	95 th
Aluminum (Al)		1.3	< 7.0		
Antimony (Sb)		0.013	< 0.050		
Arsenic (As)		0.035	< 0.060		
Barium (Ba)		0.61	< 2.0		
Beryllium (Be)		< 0.01	< 0.020		
Bismuth (Bi)		0.042	< 2.0		
Cadmium (Cd)		0.011	< 0.050		
Lead (Pb)		0.31	< 0.60		
Mercury (Hg)		0.69	< 0.80		
Platinum (Pt)		< 0.003	< 0.005		
Thallium (Tl)		< 0.001	< 0.002		
Thorium (Th)		< 0.001	< 0.002		
Uranium (U)		0.020	< 0.060		
Nickel (Ni)		0.15	< 0.30		
Silver (Ag)		0.09	< 0.15		
Tin (Sn)		0.05	< 0.30		
Titanium (Ti)		0.04	< 0.70		
Total Toxic Representation					

ESSENTIAL AND OTHER ELEMENTS								
		RESULT µg/g	REFERENCE INTERVAL	PERCENTILE				
				2.5 th	16 th	50 th	84 th	97.5 th
Calcium	(Ca)	1240	300– 1200					
Magnesium	(Mg)	23	35– 120					
Sodium	(Na)	21	20– 250					
Potassium	(K)	17	8– 75					
Copper	(Cu)	16	11– 37					
Zinc	(Zn)	170	140– 220					
Manganese	(Mn)	0.07	0.08– 0.60					
Chromium	(Cr)	0.46	0.40– 0.65					
Vanadium	(V)	0.035	0.018– 0.065					
Molybdenum	(Mo)	0.040	0.020– 0.050					
Boron	(B)	0.57	0.25– 1.5					
Iodine	(I)	0.41	0.25– 1.8					
Lithium	(Li)	< 0.004	0.007– 0.020					
Phosphorus	(P)	131	150– 220					
Selenium	(Se)	0.95	0.55– 1.1					
Strontium	(Sr)	3.0	0.50– 7.6					
Sulfur	(S)	47100	44000– 50000					
Cobalt	(Co)	0.015	0.005– 0.040					
Iron	(Fe)	6.8	7.0– 16					
Germanium	(Ge)	0.032	0.030– 0.040					
Rubidium	(Rb)	0.020	0.007– 0.096					
Zirconium	(Zr)	< 0.007	0.020– 0.42					

SPECIMEN DATA		RATIOS		
COMMENTS:		ELEMENTS	RATIOS	RANGE
Date Collected: 12/16/2013	Sample Size: 0.199 g	Ca/Mg	53.9	4– 30
Date Received: 12/20/2013	Sample Type: Head	Ca/P	9.47	1– 12
Date Completed: 01/07/2014	Hair Color: Brown	Na/K	1.24	0.5– 10
Methodology: ICP/MS	Treatment:	Zn/Cu	10.6	4– 20
	Shampoo: Intelligent	Zn/Cd	> 999	> 800



SEX: Female
AGE: 36

Toxic & Essential Elements; Hair

TOXIC METALS				
		RESULT µg/g	REFERENCE INTERVAL	PERCENTILE 68 th 95 th
Aluminum	(Al)	4.0	< 7.0	
Antimony	(Sb)	< 0.01	< 0.050	
Arsenic	(As)	0.091	< 0.060	
Barium	(Ba)	0.87	< 2.0	
Beryllium	(Be)	< 0.01	< 0.020	
Bismuth	(Bi)	< 0.002	< 2.0	
Cadmium	(Cd)	< 0.009	< 0.050	
Lead	(Pb)	0.59	< 0.60	
Mercury	(Hg)	0.82	< 0.80	
Platinum	(Pt)	< 0.003	< 0.005	
Thallium	(Tl)	< 0.001	< 0.002	
Thorium	(Th)	< 0.001	< 0.002	
Uranium	(U)	0.051	< 0.060	
Nickel	(Ni)	0.14	< 0.30	
Silver	(Ag)	0.03	< 0.15	
Tin	(Sn)	0.02	< 0.30	
Titanium	(Ti)	0.26	< 0.70	
Total Toxic Representation				

ESSENTIAL AND OTHER ELEMENTS				
		RESULT µg/g	REFERENCE INTERVAL	PERCENTILE 2.5 th 16 th 50 th 84 th 97.5 th
Calcium	(Ca)	362	300– 1200	
Magnesium	(Mg)	78	35– 120	
Sodium	(Na)	7	20– 250	
Potassium	(K)	7	8– 75	
Copper	(Cu)	19	11– 37	
Zinc	(Zn)	130	140– 220	
Manganese	(Mn)	0.15	0.08– 0.60	
Chromium	(Cr)	0.48	0.40– 0.65	
Vanadium	(V)	0.051	0.018– 0.065	
Molybdenum	(Mo)	0.038	0.020– 0.050	
Boron	(B)	0.89	0.25– 1.5	
Iodine	(I)	0.20	0.25– 1.8	
Lithium	(Li)	< 0.004	0.007– 0.020	
Phosphorus	(P)	131	150– 220	
Selenium	(Se)	0.84	0.55– 1.1	
Strontium	(Sr)	2.0	0.50– 7.6	
Sulfur	(S)	47100	44000– 50000	
Cobalt	(Co)	0.018	0.005– 0.040	
Iron	(Fe)	6.5	7.0– 16	
Germanium	(Ge)	0.034	0.030– 0.040	
Rubidium	(Rb)	0.011	0.007– 0.096	
Zirconium	(Zr)	< 0.007	0.020– 0.42	

SPECIMEN DATA		RATIOS		
COMMENTS:		ELEMENTS	RATIOS	RANGE
Date Collected: 06/27/2016	Sample Size: 0.203 g	Ca/Mg	4.64	4– 30
Date Received: 07/01/2016	Sample Type: Head	Ca/P	2.76	1– 12
Date Completed: 07/06/2016	Hair Color:	Na/K	1	0.5– 10
Methodology: ICP/MS	Treatment:	Zn/Cu	6.84	4– 20
	Shampoo: Intelligent	Zn/Cd	> 999	> 800

Living in London since 2000, prior to this in Denmark, near Copenhagen.

Height: 175cm Weight: 75kg age: 33 years, female

Current Problems Chronic fatigue syndrome – since 1994, Chronic low back pain (prolapsed disc) - 2010, Right L5/S1 discectomy and decompression - Apr 2011, Irritable bowel syndrome (constipation, flatulence, bloating) – since 1994, Chronic fluid retention, Multiple sensitivities/intolerances (drugs, nutritional supplements, foods, fungal spores, nickel, etc), Hyperaesthesia of arms and hands, Dysmenorrhea and Menorrhagia (heavy painful periods – but very short bleedings (1 day), Recurrent ovarian pain, Premenstrual syndrome, Pruritis ani, Diffuse alopecia – since 1993, Soft brittle fingernails, Recurrent cold sores, Recurrent mouth ulcers, Verrucas, Finger PIP joint pains (when supplementing Calcium), Tinnitus/Ringing for ears - 2012, test for tinnitus or hearing shows no abnormalities, Recurrent sore throats and throat catarrh, Allergic rhinitis, Chronic sinusitis, Reactive hypoglycaemia, Previous Epstein-Barr virus with reactivation, Previous recurrent infections (and antibiotics) in childhood, Family history of cancers and possibly rheumatoid arthritis. Prone to inflammation.

Persistent mineral deficiencies, esp. Magnesium and Zinc, often with elevated Copper – since 2001, **Previously low Coenzyme Q10** - 2012, Mildly low TSH (0.32; previously normal) - March 2013, **Mildly low basal temperatures** - May 2013, **Mildly elevated blood Arsenic** (6.8 pbb) and borderline elevated aluminium (42 pbb) and mercury (2.8 pbb) Apr 2013.

Low baseline mixed leukocyte metabolic activity - June 2013, **Mild Mitochondrial dysfunction** - June 2013, **Very marked Zinc deficiency** - June 2013, **Poor antioxidant enzyme status** (SOD1, borderline low SOD3, Glutathione peroxidase) - June 2013, **Borderline low RBC Glutathione** - June 2013, **Fungal dysbiosis** (markedly elevated urinary Arabinose - a fungal metabolite) - June 2013, **Probable Bacterial dysbiosis** (borderline elevated HPPA - a Clostridial metabolite) - June 2013,

Multiple toxicities test tested in June 2013 (Azo dye, Mercury, p- phenylenediamine (diamino compound), Nickel, dimethicone, chromium VI):

- **Multiple DNA Adducts** (Azo-dye on Adenylate Cyclase gene; Mercury on Triglycerol Lipase gene; Dimethicone on Delta-6-desaturase gene) - June 2013,
- **Elevated RBC Glutathione-S-transferase with bands associated with Mercury, Nickel and Chromium** - June 2013,
- **Pre-existing inhibition of mixed leukocyte metabolic activity: (up to 100 = normal, 100-200 = borderline):** Azo-dye mix 14%, Mercury (II) chloride 11.5%, p-phenylenediamine 8.5%, Nickel 6% - June 2013, **Multiple Lymphocyte sensitivities:** Azo-dyes 390, Inorganic Mercury 310, Nickel 210, Diamino Compounds 190, Organic Mercury 185, Dimethicone 170, Chromium VI 150, Nitrosamines 130, Tin 120
- Blood metallothionein: ELISA(serum) 290ug/l, normal. Comments: zinc 18%, copper 70%, Mercury= 8%, traces of two other metals too low for identification**
- Niacin status (B3) Red cell = 14,8 ug/ml (normal 14-30)**

Low baseline mixed leukocyte metabolic activity - Dec 2013, **Mild Mitochondrial**

dysfunction - Dec 2013, **Very marked Zinc deficiency** - Dec 2013, **Poor antioxidant enzyme status** (SOD1, borderline low) - Dec 2013, **Normal RBC Glutathione** - Dec 2013, **Fungal dysbiosis** (High elevated urinary Arabinose - a fungal metabolite, High elevated Tartaric Acid, elevated Citramalic and 3-oxoglutaric) - Dec 2013, **Probable Bacterial dysbiosis** (2-hydroxyphenylacetic high, 4-hydroxyphenylacetic high, borderline elevated, HPHA – normal, succinic high) - Dec 2013,

Neurotransmitter Metabolites (HVA, VMA, , Quinolinic, kynurenic – all highly elevated 5-HIAA (serotonin) borderline low. – organic acid test Dec 2013

Nutritional Markers: Very low B6 (0) below 34 normal. Vit-C very low, biotin high, B2 high, Ammonia excess: high – organic acid test Dec 2013

Amino Acids Urine 24H test: High Ammonia, Taurine, glutamate, ethanolamine, 1-methylhistidine. Low cysteine, Aspartate, Glutamine, Serine, phosphoethanolamine, - Dec 2013

Multiple toxicities test – same test tested again in December 2013 (Azo dye, Mercury, p-phenylenediamine (diamino compound), Nickel, dimethicone, chromium VI):

- **Multiple DNA Adducts** (Mercury on non-gene q12) - Dec 2013, (huge improvements – 50% less mercury and no other elements on DNA)

- **Pre-existing inhibition of mixed leukocyte metabolic activity (up to 100 = normal, 100-200 = borderline) : 2,4-diaminophenol 11%, Nickel 10.5%, Azo-dye mix 9%, p-phenylenediamine 8%, Mercury (II) chloride 6% - dec 2013, Multiple Lymphocyte sensitivities: Azo-dyes (not tested), Inorganic Mercury 290, Nickel 305, Diamino Compounds 155, Organic Mercury 200, Dimethicone 120, Chromium VI 120, Nitrosamines 90, Tin 135, Arsenic 70, Aluminium 80, Metabisulphite 130, salicylate 85, Benzoate 90, Titanium 120**

Blood metallothionein: ELISA(serum) 290ug/l, normal. Comments: zinc 28%, copper 65%, Mercury= 4%, Nickel = 3%

Niacin status (B3) Red cell = 16,8 ug/ml (normal 14-30)

Summary of Investigation Results June 2013: **Mild Mitochondrial dysfunction (approx 90% of the lower limit of normal, ref: healthy >200%);** with normal whole cell ATP (1.86, ref 1.6 - 2.9), **very low ATP-associated magnesium (0.48, ref > 0.65), borderline low ADP to ATP reversion (63.7, ref > 60%)** and no toxic blocking of the active sites or translocator protein). **Borderline low Vitamin B3 (NAD 14.8, ref 14 - 30 ug/ml).** **Poor antioxidant enzyme status: low Superoxide dismutase (33, ref >40%) (low SOD1 196, ref 240 - 410; normal SOD2 143, ref 125 - 208; borderline low SOD3 28, ref 28 - 70 u), low RBC Glutathione peroxidase (64, ref 67 - 90 U/gHb).** **Borderline low RBC Glutathione (1.78, ref 1.7 - 2.6).** **Markedly elevated Cell-free DNA (17.2, ref < 9.5 ug DNA/dl plasma) - need to improve pacing.** Normal blood metallothionein (210, ref 84 - 360 ug/l). Blood metallothionein binding: **markedly low Zinc (18%, ref about 40%), mildly elevated Copper (70% , ref about 60%)** and toxic metals: **Mercury 8% + traces of two other metals, levels too low for identification.** Normal serum Glutathione-S-transferase (40, ref 12 - 46 u); affinity chromatography: normal. **Elevated RBC Glutathione-S-transferase (185, ref 68 - 167 u); affinity chromatography: two discrete bands accounting for 15% and 4% of the total; the 15% band is associated with Mercury, the 4% band is associated with Nickel and Chromium.** DNA Adducts: **An Azo-dye 3.5 ng/ml on Adenylate cyclase gene; Mercury**

Complex 2 ng/ml on Triglycerol lipase gene; Dimethicone 1 ng/ml on Delta-6-desaturase gene. Markedly low DNA-associated Zinc (16, ref 21 - 74 ng/ml). Lymphocyte sensitivities (ref: <100): **Azo-dyes and precursors 390, Inorganic Mercury 310, Nickel 210, Diamino Compounds 190, Organic Mercury 185, Dimethicone 170, Chromium VI 150, Nitrosamines 130, Tin 120,** (normal: arsenic 90, fungisterol 85, silver 85, fluoride 80, aluminium 80, copper 70, cadmium 65). Normal intracellular calcium (95, ref 10 - 100 nmol/l). **Low baseline mixed leukocyte metabolic activity (0.65, ref 0.67 - 0.82).** Pre-existing inhibition of mixed leukocyte metabolic activity (ref: 5% or less; an inhibition > 20% is rarely seen): **Azo-dye mix 14%, Mercury (II) chloride 11.5%, p-phenylenediamine 8.5%, Nickel 6%,** (normal: dimethicone 3%). Microbial Organic Acids: **Markedly elevated Arabinose - a fungal metabolite - indicates fungal dysbiosis.**
Borderline elevated HPHPA - a Clostridial metabolite.

Summary of Investigation Results December 2013: **Mild Mitochondrial dysfunction (approx 90% of the lower limit of normal, ref: healthy >200%);** with normal whole cell ATP (1.95, ref 1.6 - 2.9), **low ATP-associated magnesium (0.55, ref > 0.65), borderline low ADP to ATP reconversion (66.3, ref > 60%)** and no toxic blocking of the active sites or translocator protein). *Borderline low Vitamin B3 (NAD 16.8, ref 14 - 30 ug/ml).* **Poor antioxidant enzyme status: low Superoxide dismutase (36, ref >40%) (low SOD1 220, ref 240 - 410; normal SOD2 148, ref 125 - 208; normal SOD3 35, ref 28 - 70 u), normal RBC Glutathione peroxidase (72, ref 67 - 90 U/gHb), normal RBC Glutathione (1.95, ref 1.7 - 2.6).** **Markedly elevated Cell-free DNA (15.8, ref < 9.5 ug DNA/dl plasma)** - need to improve pacing. Normal blood metallothionein (290, ref 84 - 360 ug/l). Blood metallothionein binding: **markedly low Zinc (28%, ref about 40%), mildly elevated Copper (65%, ref about 60%)** and toxic metals: **Mercury 4% + Nickel 3%.** DNA Adducts: **Mercury 1 ng/ml non-gene q12. Low DNA-associated Zinc (23, ref 21 - 74 ng/ml).** Lymphocyte sensitivities (ref: <100): **Azo-dyes and precursors (not tested), Inorganic Mercury 290, Nickel 305, Diamino Compounds 155, Organic Mercury 200, Dimethicone 120, Chromium VI 120, Titanium 120, 2,4-diaminophenol 170, Metabisulphite 130, Tin 135,** (normal: arsenic 70, Aluminium 80, Salicylate 85, Benzoate 90, Nitrosamines 90). Normal intracellular calcium (90, ref 10 - 100 nmol/l). **Low-normal baseline mixed leukocyte metabolic activity (0.68, ref 0.67 - 0.82).** Pre-existing inhibition of mixed leukocyte metabolic activity (ref: 5% or less; an inhibition > 20% is rarely seen): **Azo-dye mix 9%, Mercury (II) chloride 6%, p-phenylenediamine 8%, Nickel 10.5%, 2,4-diaminophenol 11%.** Microbial Organic Acids: **Markedly elevated Arabinose - a fungal metabolite - indicates fungal dysbiosis. Markedly elevated Tartaric Acid,** elevated Citramalic and 3-oxoglutaric. **Bacterial markers** (2-hydroxyphenylacetic high, 4-hydroxyphenylacetic high, borderline elevated, HPHPA – normal, succinic high) **Neurotransmitter Metabolites** (HVA, VMA, , Quinolinic, kynurenic – all highly elevated 5-HIAA (serotonin) borderline low. – organic acid test Dec 2013 **Nutritional Markers:** Very low B6 (0) below 34 normal. Vit-C very low, biotin high, B2 high, Ammonia excess: high – organic acid test Dec 2013

Supplements at Hair test Dec 2013 Vitamin C & Lysine (Douglas Labs), 500mg/250mg 16/d, Beyond CoQ10 (Nature's Plus) 200mg 1/d, L-Carnitine 500mg, 2/d, More GLA (Minami Nut) EPA 106mg/GLA 206mg 2/d, Glutathione (reduced) (biocare) 80mg 3/d, Acetyl-L-Carnitine 500mg 1-2/d, Vitamin D Pears (Pharma Nord) 25mcg 8/d, Milk Thistle Max V (Douglas Labs)

350mg 1/d, Selenium Precise (pharma Nord) selenomethionine, 30 selenium compounds 100mcg 1/d BioMagnesium (Pharma Nord) 200mg 1/d, Magnesium EAP Magnesium Phosphate (Biocare) 4/d, PolyMag (Poliquin Performance; Mg 125mg as malate, lysinate, glycinate) 4/d, Hemaplex (Nature's Plus) multi with iron-85mg 1/d, Vitamin D-pearls 38mcg/d, Mineral complex (Douglas Labs) 1-2/d Vitamin B3, Niacinamide (Solgar) 550mg 1/d, Probiotics (Udo's Choice super 8) 1-2/d, Nutrispore (anti-fungal herbs) 2/d, Saccaromyces Boulardii 1-2/d, Quercetin Plus (biocare) 1/d, Calcium, D-Glycinate (Charles Poliquin) 1/d, Estroclear (Charles Poliquin) 1/d, Multivit P1/P2 balance (Charles Poliquin) 1/d, Estrodetox (Charles Poliquin) 2/d.

Supplements today May 2014 More EPA Platinum 1100/7.5mcg 1/d, Vitamin C & Lysine (Douglas Labs), 500mg/250mg 10-16/d, Bio-quinone Q10 Gold (Pharma Nord) 200mg 1/d, L-Carnitine 500mg, 2/d, More GLA (Minami Nut) EPA 106mg/GLA 206mg 2/d, Glutathione (reduced) (biocare) 80mg 3/d, Zinc Glycinate (Solgar) 22mg 1/d, Nutri E 400mg rich in Gamma Tocopherol (Douglas Labs) 280/40mg 1/d, Acetyl-L-Carnitine 500mg 2/d, HydroxyB12 (AOR) 1000mg 1/d, Vitamin D Pears (Pharma Nord) 125mcg 1/d, Milk Thistle Max V (Douglas Labs) 350mg 1/d, Selenium Precise (pharma Nord) selenomethionine-30 selenium compounds 100mcg 1/d, BioMagnesium (Pharma Nord) 200mg 2/d, Magnesium EAP Magnesium Phosphate (Biocare) 6/d, PolyMag (Poliquin Performance; Mg 125mg as malate, lysinate, glycinate) 6/d, Hemaplex (Nature's Plus) iron 85mg 1/d, Mineral complex (Spectamin, Douglas Labs) 1/d, Vitamin B3 Niacinamide (Solgar) 550mg 1/d, Vitamin B2 riboflavin 5-phosphate (Thorne) 36.5mg 1/d, B-complex with Metafolin and intrinsic factor B1-44mg, B2-20mg, B3-50mg, B6-PHP-14mg, Calcium L-methylfolate- 400mcg, B12-methylcob-500mg, biotin-300mg 1/d, Chromium Picolinate (H&B) 200mcg 2/d, Bio-manganese (Biocare) 10mg 1/d, Kelp (Viridian) iodine 420mcg 1/d, ginger root (Good n Natural) 550mg 1/d, Probiotics (Udo's Choice super 8) 1-2/d, Similase Enzymes (Nutri Advanced) 328mg blend 2-3/d, occasionally - Vi-siblin (fibers), Activated Charcoal, Lecithin, GABA 250mg 2/d.

Saunas twice a week, FIR Sauna once a week.

All cosmetics, lotions, shampoo, self-tanning lotion, Sunscreen, hairspray changed to naturals - July 2013. Hair pins changed to plastic instead of metals – July 2013

Drug Sensitivities

Penicillin (rash), Tramadol (vomiting), Oxycodone (vomiting), Duloxetine - Cymbalta (restless, laughing, "hyper"), Many probiotics, Physillium Husk (constipation).

Food Sensitivities Milk products (throat catarrh), Sugars (loose stools, fatigue, low back pain), Brassicas, malitol (flatulence), Pineapple, apple, mango, papaya, banana, apricots (fluid retention), Spelt bread (low back pain), Rye bread (constipation, low back pain), Cider, wine (malaise, toxic).

Inhalant Sensitivities Fungal spores (dyspnoea, cough), Poorly ventilated meeting rooms (sneezing).

Investigation Results Skin Contact Sensitivities Nickel, organic mascara, mosquito bites.

EMF Sensitivity Computers (urinary urgency).

Potentially Toxic Exposures Alcohol: 0-1 units/week. Tobacco: Never.

Passive smoking: in clubs for 3 years 4 hours, twice a week 1996 - 1999.

Recreational drugs: None. Immunisations: Average.

Antibiotics: 8 - 12. Contraceptive pill/injection/Mirena IUD: 15 years: Cilest 1995 - 2008;

Dianette 2008 - 2010. Other medical drugs: Lyrica Apr 2011 - May 2012.

Dental: Amalgams: a few in deciduous teeth. Metallic crowns: none. **Past braces/retainers: metallic braces for 2 years , retainer for 3 years 1994 - 1999.** Root canal Rx: none.

Tuna: spells of eating a lot.

Orthopaedic/surgical/IUDs metals: None Non-stick cookware: Frying pans only.

Stainless steel cookware: All cooking pots. (now changed to cast iron)

Aluminium cookware: None.

Fluoride: Toothpastes + fluoride painting of teeth 1x/yr 19 years. Antiperspirants: Daily since teens.

Biocides (pesticides, herbicides, fungicides, etc): None known.

Traffic fumes: ++ 1989 - 1996; 2000 - 2008. Hair dyes: 2 monthly 19 years 1994 - 2013.

Artificial sweeteners: Occasional.

Occupational/hobby exposures: Sound engineer 2000 - 2004. Personal care products: Hair sprays ++ (parabens).

Travel shot - Tenatus, Hep A + booster Dec 2012, Booster June 2013

Antiseptic soaps: Some outside home. Air fresheners: None. Plasticisers: Minimal. Local pollutants: None known. X-rays: x4. Radioactivity: None known.

Maternal exposures: Dental amalgams ++.

Past Medical History Caesarean delivery, birth weight 3700 grams. Breast fed one year. Recurrent colds, coughs, sore throats, influenza, pneumonia as a child. Onset of recurrent cold sores in childhood. 1996: Recurrent vaginal candidiasis for 4 years. 1993: Onset of diffuse alopecia. 1994: Onset of chronic fatigue syndrome. 2000: Started cows' milk free diet, having intermittent goats' and sheeps' milk products. 2003: Vega test showed various sensitivities including to Bifidobacteria. 2006 Nov: Normal TSH (0.5 & 0.81). 2008: Bereavement - mother died. 2010: Severe low back pain - took Lyrica, paracetamol 4g and ibuprofen 1600mg daily for 2 years. Apr 2011: Right L5/S1 discectomy / decompression, Lister Hospital inpatient 2 weeks. After discharge abdominal bloating and pain, flatulence, constipation, intense fatigue, increased right leg sciatic pain - all only resolved a year later when excluded sugars and starches from diet. 2011 Dec: Normal TSH (0.48), FT4 (15.1). 2012: Diet excluding sugars, starches, gluten grains, milk products, yeast and fungi - low back free within 5 days! Also marked improvement in fatigue. Aug 2012: Worsening in chronic fatigue - found to have serum co-enzyme Q10 - marked improvement in chronic fatigue in taking co-enzyme Q10 supplement. Oct 2012: Mineral profile (Biolab): Low serum calcium and manganese and low RBC magnesium, borderline low serum chromium, iron and magnesium, mildly elevated zinc. Low coenzyme Q10, normal vitamin D (184nmol/l). Low insulin (2.5 mIU/l, ref 4.0 - 20). Feb 2013: Borderline haemoglobin, iron deficiency picture. Started iron supplement (85mg/d). March 2013: Mineral Profile (Biolab): Low serum manganese and RBC magnesium, borderline low serum chromium, zinc and magnesium, elevated selenium. Normal serum zinc response to zinc tolerance test. Methane and hydrogen breath test using lactose: high fasting methane (13 ppm), no significant change over 180

mins. Normal coenzyme Q10. Normal ferritin (87 & 46). Low TSH (0.32), low sodium (135). Normal faecal Elastase (>500 ug/g) and Calprotectin (43 ug/g).

Family History Mother: died aged 63 carcinoma of the breast, (oestrogen sensitive), skin allergies, miscarriages (3), gall bladder problems, diffuse alopecia, lactose intolerant, early greying of hair, maybe rheumatoid arthritis, multiple dental amalgams and mercury toxicity. Maternal grandmother: died aged 73, myocardial infarction, nickel allergic. Maternal grandfather: died aged 83. Father: malignant melanoma in 1990, hypertension, obesity, benign prostatic hypertrophy, slipped disc, stress problems. Paternal grandmother: cancer Paternal grandfather: died in his 60s, myocardial infarction. Sister 1 (11 years older): migraine, chronic fluid retention, tomato intolerant. Sister 2 (2 yrs 3 months older): well.