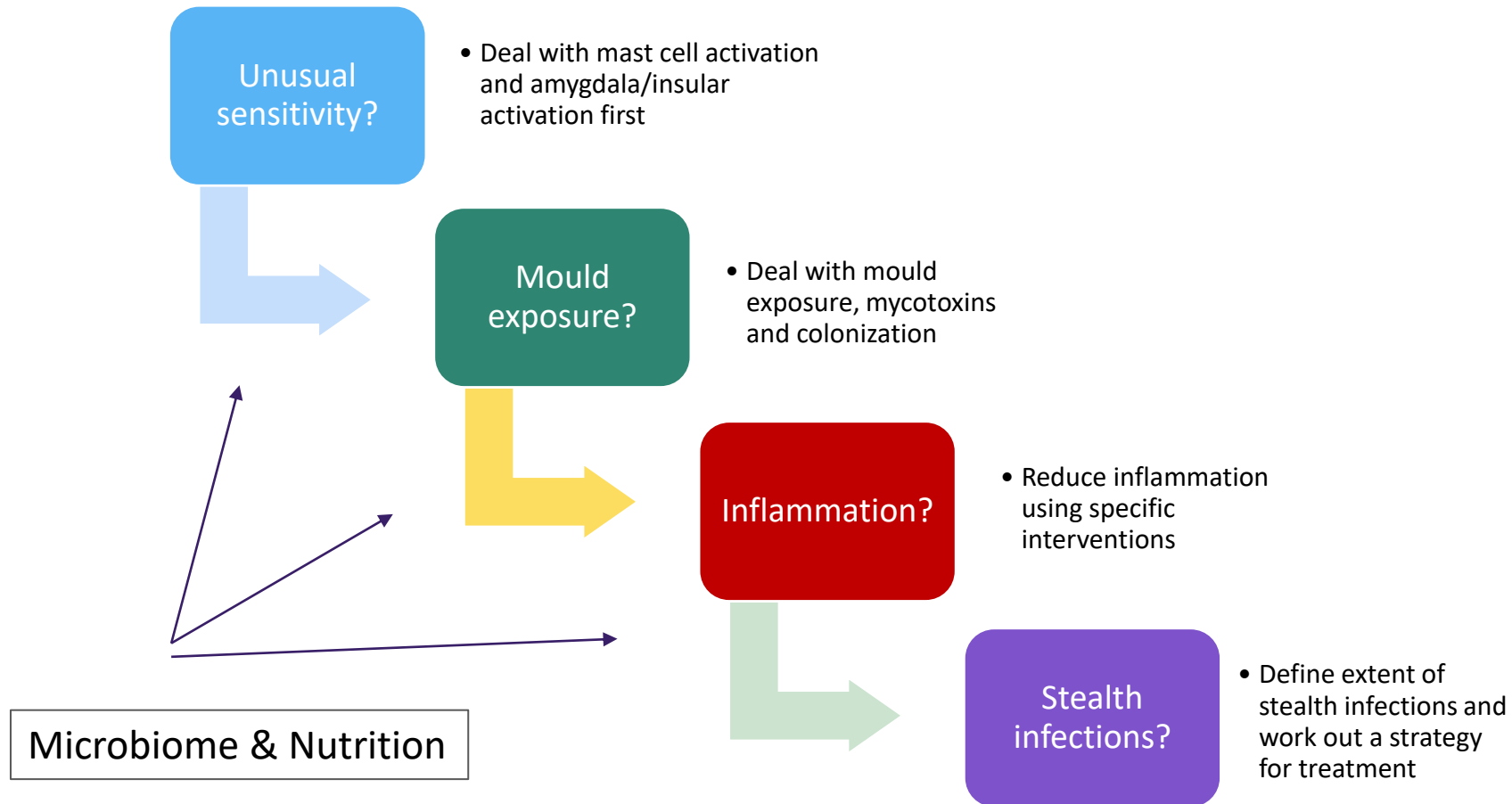




# "Putting It All Together"

Dr. Sandeep Gupta and Dr. Christabelle Yeoh

# A Possible Framework for Environmentally Acquired Illness



# Case study #1: Migraines

- 56 y/o male, 9 years intractable migraine
- headaches as teenager  
aspirin and paracetamol always sorted it out until 9 years ago when it got worse
- acute pain hospital 4 times, morphine injections don't touch it
- CGRP did not help much and also major side effect- generalised hair loss (apparently hair loss not documented in literature but blog posts show very common)
- aspirin/ paracetamol/ caffeine mix helps but gastric ulcer with high usage
- has tried: botox, occipital nerve blocks, cranial device (transcranial epidermal neuromodulator), CBD caused nausea, SSRIs, anti epileptics
- migraine more than once/ day, they can come back- e.g 4am and mid afternoon. taking constant daily sumatriptan. frontal left side of head and tight band +++ distorted smell + taste during migraine

# Health time line

- only adopted child
- age 5 adenoids and tonsillectomy
- teenager asthma
- 20's lived in Japan. age 21 MVA # clavicle + concussion. 6/52 later alopecia areata. prone to headaches
- 30's hospitality, tourism, teaching
- 40's tourism in Italy. Migraines started after long drives
- mid 40's mum died, 6/52 later lost 50% of hair again alopecia areata. Migraine worse

## Practitioners seen:

GPs  
Physiotherapists  
Acupuncturists  
Neurologists  
Interventional Neurologists  
Psychologists  
Migraine/Headache Specialists  
Exercise & Nutrition Coach  
Dentist for dental splint

## Previous tests done:

Sleep study (no sleep apnea detected)  
MRI (no anomalies detected)  
Blood test - over 40 different parameters (no anomalies detected)  
Genetic testing (no mutations detected)  
CT scan - face/sinuses (no abnormalities detected)

# What he has attempted in the last 9 years (1)

## Prophylactic Pharmacological Treatments (failed):

Emgality injections (monoclonal/CGRP blocker)

Propanolol

Amytriptyline Nortryptiline

Topiramate (excessive hair shedding and inability to function/impaired decision-making)

Medicinal cannabis (CBD 50mg)

Botox (2 cycles - 6 months)

Prochlorperazine Maleate

Metoclopramide Hydrochloride Monohydrate

Prednisone

## Acute Pharmacological Treatments :

Excedrin (acetaminophen, aspirin, caffeine) but ceased due to GI bleeding and gastric ulcers

Rizatriptan Sumatriptan (currently weekly)

Largactil (infusion/hospital emergency department)

Stemetil (infusion/hospital emergency department)

## Daily Nutrition & Supplementation (failed/no effect)

Tyrosine (trichologist recommendation) Melatonin (Circadin)

Flaxseed oil (omega 3)

Ginkgo Biloba extract

Folate 500mcgms/Vitamin B6 35mg/Vitamin B12 400mcgms

Elimination of caffeine, chocolate, dairy, sugar, gluten, MSG for several weeks each myBrain Co Energise formula

Bioceuticals Migraine Care formula

Vitamin D Magnesium

## Devices (failed/no effect):

Cefaly (electro neurostimulation)

Mytrex neck electro neurostimulator

Vagus nerve pump (Migraine Stopper)

# What he has attempted in the last 9 years (2)

Complementary Therapies (failed/no effect):

Traditional Chinese Medicine (herbal)  
Acupuncture (3 months)

Reiki

Oxygen Therapy

Sleep hygiene (adjusting sleep times/cycles)

Wim Hof Breathing exercises

Polarity therapy (warm/cold)

Omega-3 (anti-inflammatory diet)

Exercise (no effect):

Jogging

Resistance training

Bushwalking

Yoga

Meditation

## other past medical history

- bowel movements – previously erratic, runny diarrhoea, flatulence  
now eating bran daily and bowels are firmer
- vaccines:  
AZ June and Sept 21, Pfizer Jan 22  
after Sept and Jan the migraines increased significantly  
developed shingles post vax

# autonomic function questions

feels cold very easily  
always freezing cold hands and feet since youth  
needs hot bath in winter for 2-3 hours daily  
jogs 5-6 x pw feels warm when running but once stops is freezing cold  
no problem with heat tolerance, loves the heat  
sweaty palms always even if not stressed  
hair loss on arms and legs starting to come back as it all fell out with alopecia (red light helps)  
lost all armpit hair, coming back  
cuts do not heal well on hands and lower limbs  
bladder - no nocturia, some urgency + frequency  
effort tolerance- likes 15km hike when has no pain  
no palpitations generally (had it after AZ vaccine)  
10 years ago told to have a pacemaker- some heart blocks 3-5sec in sleep, asymptomatic, HR 36  
BP generally low his whole life



# Lifestyle

- Physical activity:  
running 45 mins 5-7 times a week  
yoga  
breathing Wim Hof
- SLEEP:  
sleep study done  
high sleep latency  
minor sleep disturbance  
told nothing of note or needing treatment
- Red light therapy: tried Novothor, had some headache free days, so purchased a Mito full body panel. using daily for a month 15 mins each side

# Nutrition

- Tried lots of elimination diets
- “I’m sceptical about diets, to give full disclosure”
- craves chocolate  
can’t imagine going without it  
now 2-4 squares daily  
used to have a whole family size block  
or whole family size Toblerone as a snack
- coffee no more than 1 a day
- not done histamine avoidance  
eats high histamine foods since age 15  
living in japan

# Clinical exam + initial plan

## Examination:

eyes horizontal and vertical gaze + saccades  
ok no dysmetria, convergence gaze ok  
latencies slow  
tongue puffy  
face puffy  
mallampati grade 4  
no sign of low CO<sub>2</sub> on lying and standing  
(35mmHg)  
HR jumps a bit on standing, but no POTS  
HS quiet systolic murmur  
lungs normal  
skin NAD  
abdo NAD  
pupils normal response to light

## Plan:

exclude PFO  
review sleep study + airway  
reviewed histamine food list and plan for  
low histamine diet  
refer to integrative breathing support  
building nitric oxide

# Pathology results

Histamine: >2  
RT3 588  
serum Cu 13 plasma zinc 12  
Mg 2.2 Vit D 71  
tryptase 1.8  
ASCA neg  
autoimmune, thyroid, cardiolipin, ANA OK  
testo OK, SHBG 53 just above range  
HCY 8.9  
Glucose 5.1, Insulin 4, HbA1c 5.7%, Leptin 6  
DHEAS 6  
CRP ESR low  
D Dimer 0.84, fibrinogen OK, FBC ok

# first follow up

- taking great care with the low histamine diet  
“complete revelation” has total migraine free days  
migraine diary - one week into low histamine diet headaches more than halved  
usually taking 30 sumatriptan each month  
then last month only 16 tablets  
then this month only 2 tablets  
able to sleep much better
- supplements poor tolerance:  
Histease (quercetin + nigella sativa) : got migraine and cumin repeats on him  
quercetin alone knew within 3 days it was helping- slept 6-7 hours thru the night  
EPA DHA SPM - small rash bumps on neck and chest  
tried it again- still had the same bumps - then stopped  
tried it again at half dose- still a few skin rashes, has stopped it again  
has tried histease again - no migraine but cumin still repeating

# first follow up

- did transcranial doppler with Dr Ross Sharp - no PFO!
- given Plavix, does not want to take
- taking aspirin 200mg twice per week
- suggest to add luteolin, cromolyn, ketotifen: not keen!
- migraine free now over 6 weeks

## Case study #2: pancreatic insufficiency

- 43 y/o male. worked with integrative GP for years- just retired
- PC: reaction to histamine 3 years ago  
Last drink of alcohol was 3 years ago  
Headache 24 hours, heavy eyes, cant concentrate on anything  
lie down and had to close his eyes. had to stop alcohol
- everyday a huge effort  
brain fog, heavy eyes, elevated BSL unstable w.r.t histamine reactions + exercise

# Health time line

- grew up on farm, hayfever itchy eyes took lots of antihistamines from young
- eczema on his feet since child, dustmite, grass allergy
- septoplasty age 40, helped breathing
- exposure to water damaged environments over lifetime, recent few years major remediations done
- has always been careful with diet



# Systemic enquiry

## GIT:

Appetite: loves good healthy food, wakes with no appetite

Feels better with creon

Mild bloating during the day for years

If goes for a run, that triggers bowel movement

Mildly constipation: goes every 2 days usually, exercise helps

Taking Motion Potion (prebiotic fibre), helps

Excessive gas

Harder stools usually, last 6 months softer

## Sleep:

easily disrupted with exertion, stress, histamine food exposures

# Diet + lifestyle

Breakfast: Sautéed greens (kale, spinach, leek, broccoli), toast and nut butter/ pesto. Fried egg with the greens every second day. Oat porridge with some fruits

Lunch: organic salad, sprouts, onion, walnut, leftover dhal/ bean/ rice

Vegetable soup

Dinner: Steamed veggies/ Vegetable soup/ Dhal

1-2x a week a bit of meat (chicken, roast lamb, homemade meatball)

Beef curry Dessert Fruit with a bit of granola, ground flax, hemp oil, slippery elm powder, cacao, coconut yoghurt

Eat whole range of fruits (not low histamines one)

Snacks Veggie sticks with dips (hummus or nut dips), Toast and avo .Homemade muesli bar

Water 1.5L. 2 black coffee. Can't take black and green tea- feels the histamine effect but not coffee

Hardly eating out

Craves sweet things

Avoided histamine food for 3 months eg aged meat, eggplant, cooked tomato

Mainly plant based now

1 day of 7 feels histamine effects

very busy corporate job, investment firm

No down time in his life

4 kids under 10

Loves taking the family camping

# pathology

stool pancreatic elastase 20-70 (>200)  
calprotectin normal  
IgA serum normal  
IgE 120 (<100)  
IgE RAST grass and HDM ++. Mould -ve  
Full autoimmune+ coeliac screen NAD  
Tryptase 6.4 (<13.5)  
ECP 34.5 (<15)  
Histamine 0.5 to 0.7, HCY 7.8  
CgA 51 (<102)  
FBC normal, eosinophils are normal/low  
HbA1C 5.7%, insulin 4,  
SHBG 75, FAI 25%, DHEAS 8

stool testing:

low sIgA

dientamoeba fragilis, blastocystis hominis  
microba SI 4.3, good score, no pointers to  
clinical hints

USS abdo and CT scan- normal pancreas  
and other organs, no gallstones

# GI biopsies

Specimen(s) Received:  
(1) Gastric; (2) Small bowel; (3) Rectum

Clinical History:  
Abdominal pain.

FINAL SUMMARY:(1) GASTRIC: NO SIGNIFICANT ABNORMALITY  
(2) SMALL BOWEL: NO SIGNIFICANT ABNORMALITY  
(3) RECTUM: NO SIGNIFICANT ABNORMALITY

Macroscopic Description:

- (1) One fragment of grey tissue, 2-3mm in diameter. All embedded.
- (2) Three fragments of grey tissue, each 2-3mm in diameter. All embedded.
- (3) One fragment of grey tissue, 2-3mm in diameter. All embedded. (BG)

Microscopic Description:(1) Mucosa Type: Antral

Inflammation: Nil significant

Helicobacter: Nil

Metaplasia: Nil

Ulceration: Nil

Malignancy: No malignancy or dysplasia seen

- (2) The sections show fragments of small bowel mucosa with normal villous architecture.

There is no significant inflammation.

No granulomas or parasites are seen.

There is no evidence of malignancy.

- (3) The sections show large bowel mucosa with normal crypt architecture and goblet cell numbers. There is no significant inflammation. No granulomas or parasites are seen. The subepithelial collagen layer is not thickened.

There is no evidence of dysplasia or malignancy.

Retrieved sample to request further assessment to report on immunohistochem CD117 stain to report on the number of mast cells php

Supplementary report (24.5.2020):

At the request of the clinician:

For specimen 1 (gastric biopsy), the mast cell count is approximately 20 per high power field.

For specimen 2 (duodenum biopsies), the mast cell count is approximately 60 per high power field.

The cells are single and scattered, without confluence.

Page 1 of 2

# Treatment suggestions

- was told to treat DF BH with alinia 5 days. I suggested a 'full' parasite protocol in view of mast cell activation background- reference Dr Kristine Gedroic and Simon Yu
- 12 week Rx- week 1 alinia 500mg bd/tds, week 2 ivermectin 12-18mg od, week 3 albendazole 200-400mg bd, week 4 biltricide 600mg.
- (alternative options: 12 weeks Mon – Thurs Albendazole 200mg BD and Ivermectin 12mg OD, Fri- Sun off )
- Cromolyn SR 200mg BD, ketotifen 1mg nocte, diphenhydramine 25mg nocte, quercetin, nigella sativa, tudca, creon, CGM for 2 weeks

# follow up after anti parasitics

| Date         | 01/12/20  | 28/04/21  | 30/08/21  | 01/09/22  |       |           |
|--------------|-----------|-----------|-----------|-----------|-------|-----------|
| Time         | 0915      | 1245      | Unkn      | 0910      |       |           |
| Lab ID       | 841889447 | 844871365 | 864177578 | 880627722 | Units | Reference |
| F-Elastase 1 | L 70      | L 34      | L 24      | 490       | ug/g  | (>200)    |

Comments on Collection 01/09/22 0910:

Interpretation of result:

|                 |  |
|-----------------|--|
| <100 ug/g       | Severe Exocrine Pancreatic insufficiency           |
| 100 - <200 ug/g | Mild to moderate Exocrine Pancreatic insufficiency |
| >= 200 ug/g     | Normal   |

Test performed by DiaSorin Liaison chemiluminescent immunoassay (CLIA).

# follow up after anti parasitics

|             |           |           |           |           |       |           |
|-------------|-----------|-----------|-----------|-----------|-------|-----------|
| Date        | 09/07/20  | 26/04/21  | 28/10/21  | 01/09/22  |       |           |
| Time F-Fast | 0827 F    | 0813 F    | 0909      | 0910      |       |           |
| Lab ID      | 844211710 | 850516882 | 863184000 | 880627722 | Units | Reference |
| ECP         | H 34.30   | H 17.50   | H 16.10   | H 15.80   | ug/L  | (<15)     |

Comments on Collection 01/09/22 0910:  
Elevated Eosinophil Cationic Protein levels result from activation of eosinophils in allergic or eosinophilic syndromes. Medicare rebate is only available for ECP measurements in children (<12) with asthma.  
(ImmunoCAP 250)

NATA Accreditation No 2178

# follow up after anti parasitics

- bowel pattern-  
once or twice per day, morning  
no more constipation at all  
good stools, started sinking  
no more bloating, no wind  
some histamine foods- brain fog next day
- largely vegetarian  
eat meat twice per week for iron. chopped liver, meatloaf , fresh meat  
no wine, a bit of fruit for dessert  
eating more fruit in the last one year compared to previous  
some honey on porridge, some vegan chocolate, some seed bread
- Sleep has improved a lot which makes the biggest QOL and functional capacity difference



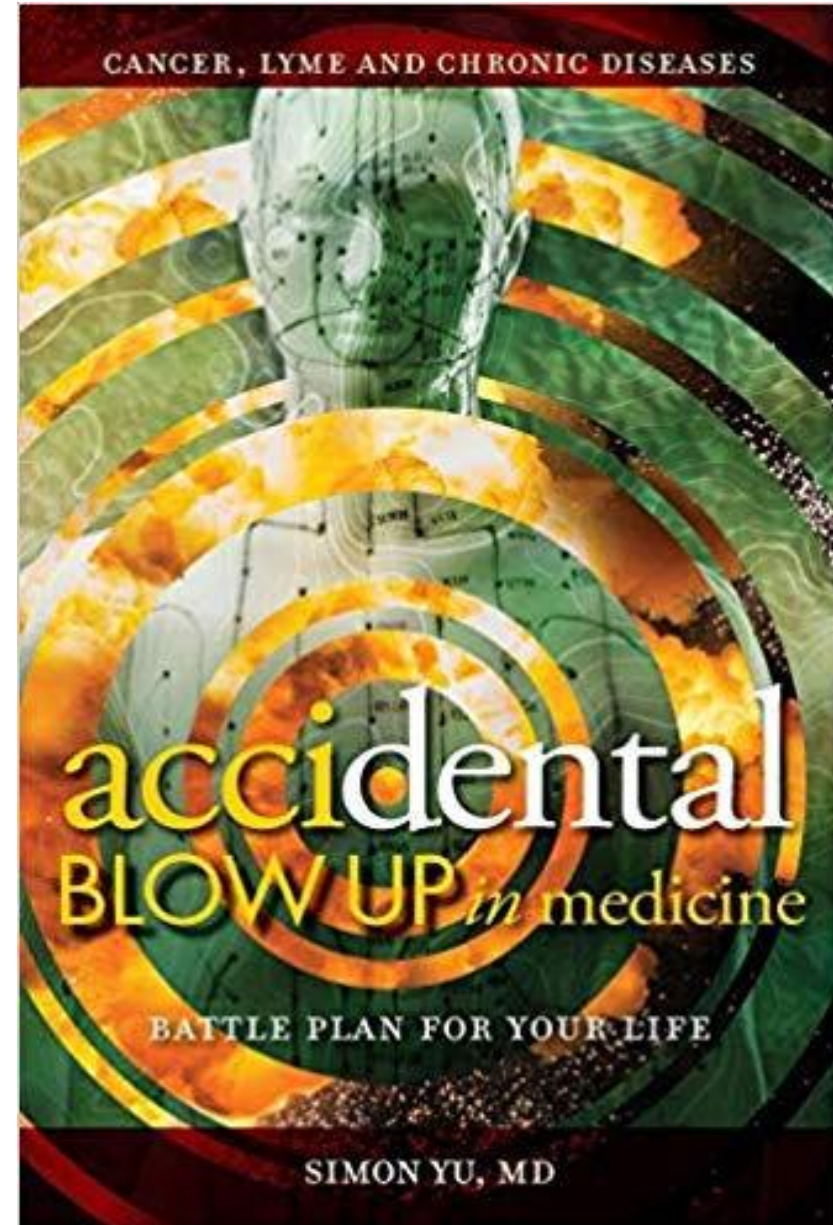
"A groundbreaking book, *A Nation of Unwell* offers a new roadmap for healing. I recommend it as a must-read for anyone who wants to live a life of wellness." — Andrew Weil, MD

# A NATION *of* UNWELL

.....  
WHAT'S GONE WRONG?



KRISTINE L. GEDROIC, MD  
with Valerie A. Latona



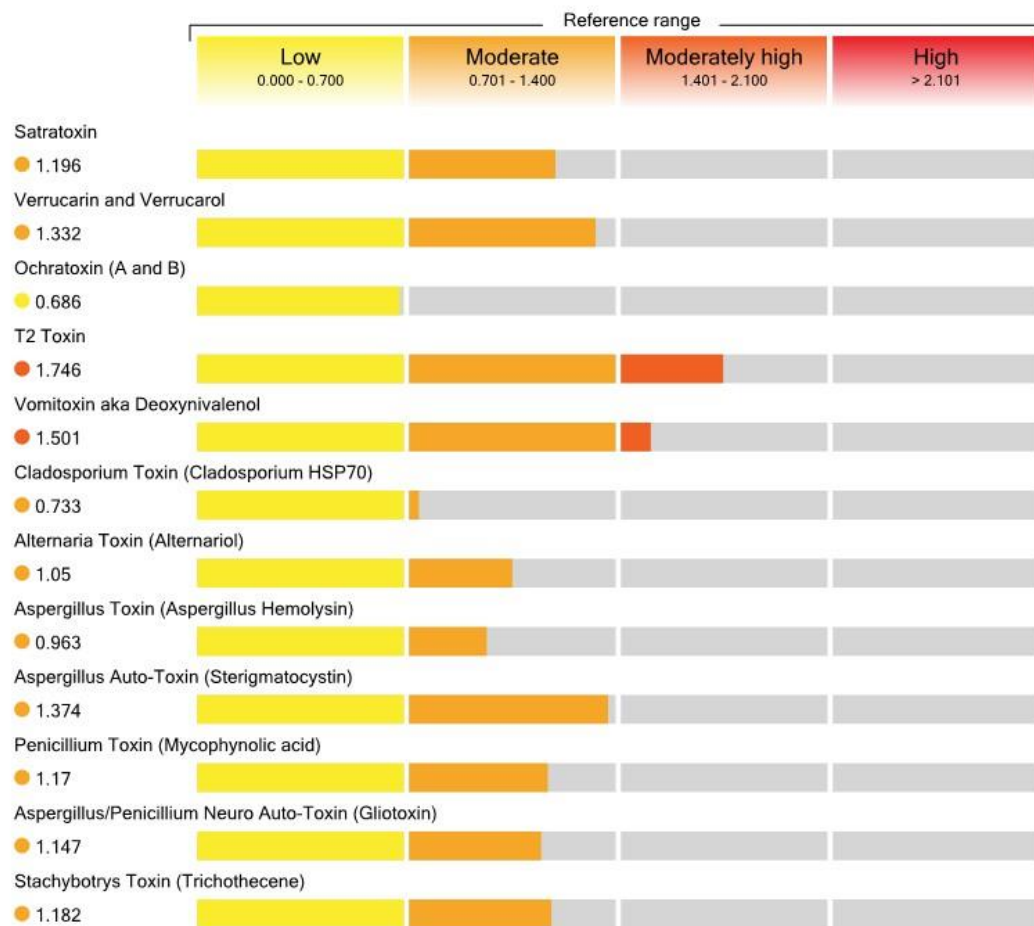
Australian  
Chronic Infectious &  
Inflammatory Disease  
Society

# Case History #3 – Multisystem illness

- Ms JM – 27yoF
- Became unwell at age 18
- With EBV
- Appendicitis age 22
- Didn't recover after the operation
- Gained weight very quickly after this
- Was in family home
- Initial symptoms were "like a whole body shutdown"
- Very constipated, "gut was like concrete"
- Never got better
- "Mould was always in the back of my mind"

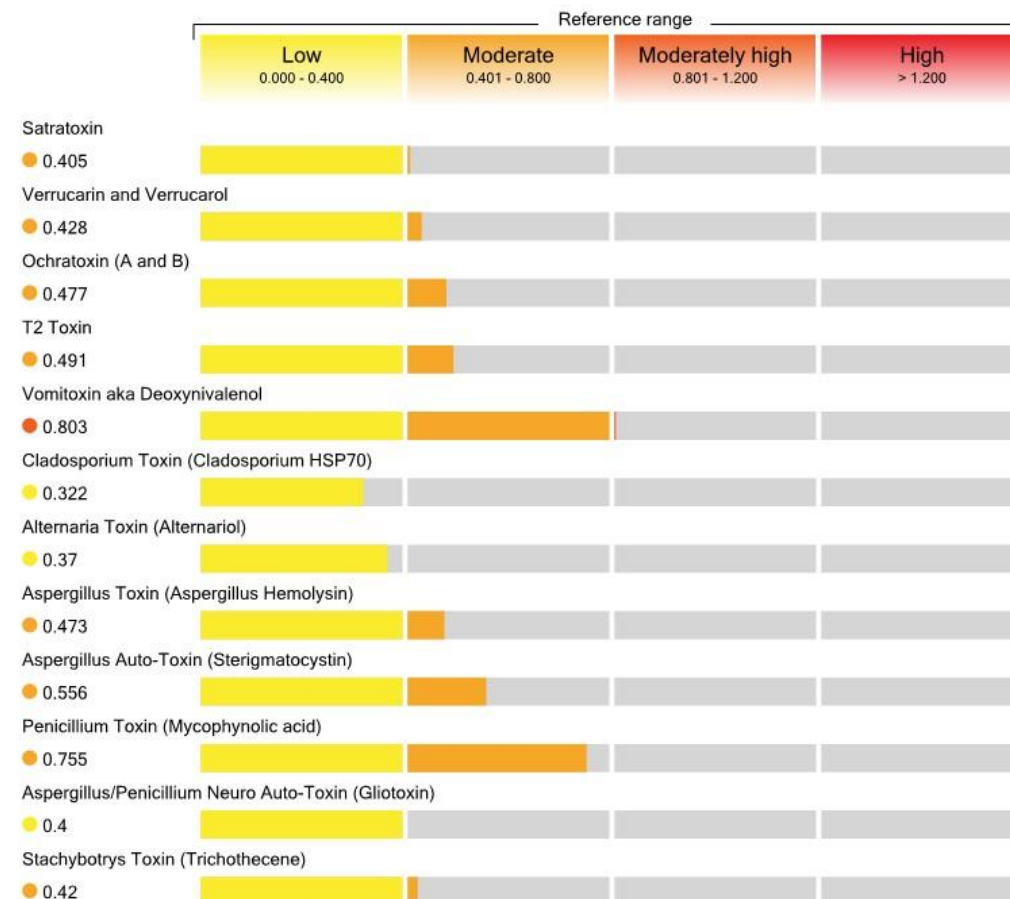
## Test results for IgG antibodies

Ms JM



## Test results for IgE antibodies

Ms JM



**Requisition #:**  
**Patient Name:** Ms JM  
**Patient Age:** 24  
**Patient Sex:** F  
**Physician:** RESEARCH NUTRITION  
**Date of Collection:**  
**Time of Collection:**  
**Print Date:**









## Organic Acids Test - Nutritional and Metabolic Profile




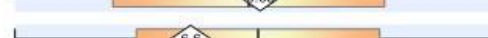
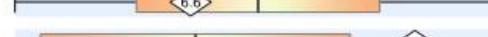
**Metabolic Markers in Urine** | **Reference Range (mmol/mol creatinine)** | **Patient Value** | **Reference Population - Females Age 13 and Over**

### Intestinal Microbial Overgrowth

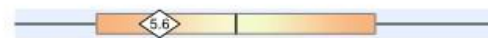


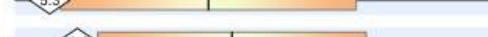
#### Yeast and Fungal Markers

|   |                             |        |      |   |
|---|-----------------------------|--------|------|---|
| 1 | Citramalic                  | ≤ 3.6  | 3.4  |  |
| 2 | 5-Hydroxymethyl-2-ketobioic | ≤ 10   | 10   |  |
| 3 | 3-Oxoglutaric               | ≤ 0.33 | 0    |  |
| 4 | Furan-2,5-dicarboxylic      | ≤ 16   | 10   |  |
| 5 | Furancarbonylglycine        | ≤ 1.9  | 0.05 |  |
| 6 | Tartaric                    | ≤ 4.5  | 0.38 |  |
| 7 | Arabinose                   | ≤ 29   | H 72 |  |
| 8 | Carboxycitric               | ≤ 0.05 | 0    |  |
| 9 | Tricarballic                | ≤ 0.44 | 0.33 |  |

#### Bacterial Markers

|    |                             |             |      |   |
|----|-----------------------------|-------------|------|---|
| 10 | Hippuric                    | ≤ 613       | 164  |    |
| 11 | 2-Hydroxyphenylacetic       | 0.06 - 0.66 | 0.36 |   |
| 12 | 4-Hydroxybenzoic            | ≤ 1.3       | 0.65 |  |
| 13 | 4-Hydroxyhippuric           | 0.79 - 17   | 6.6  |  |
| 14 | DHPPA (Beneficial Bacteria) | ≤ 0.38      | 0.31 |  |

#### Clostridia Bacterial Markers

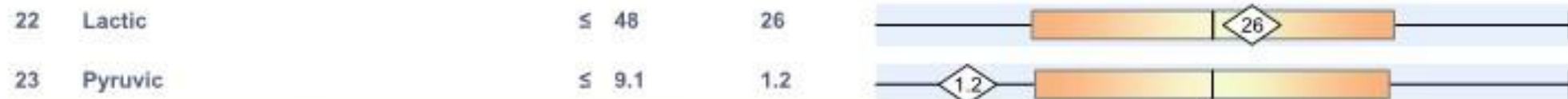
|    |  |       |     |   |
|----|--|-------|-----|---|
| 15 | 4-Hydroxyphenylacetic<br>( <i>C. difficile</i> , <i>C. stricklandii</i> , <i>C. lituseburens</i> & others) | ≤ 19  | 5.6 |  |
| 16 | HPHPA<br>( <i>C. sporogenes</i> , <i>C. caloritolerans</i> , <i>C. botulinum</i> & others)                 | ≤ 208 | 89  |  |
| 17 | 4-Cresol<br>( <i>C. difficile</i> )  | ≤ 75  | 5.3 |  |
| 18 | 3-Indoleacetic<br>( <i>C. stricklandii</i> , <i>C. lituseburens</i> , <i>C. subterminale</i> & others)     | ≤ 11  | 1.4 |  |



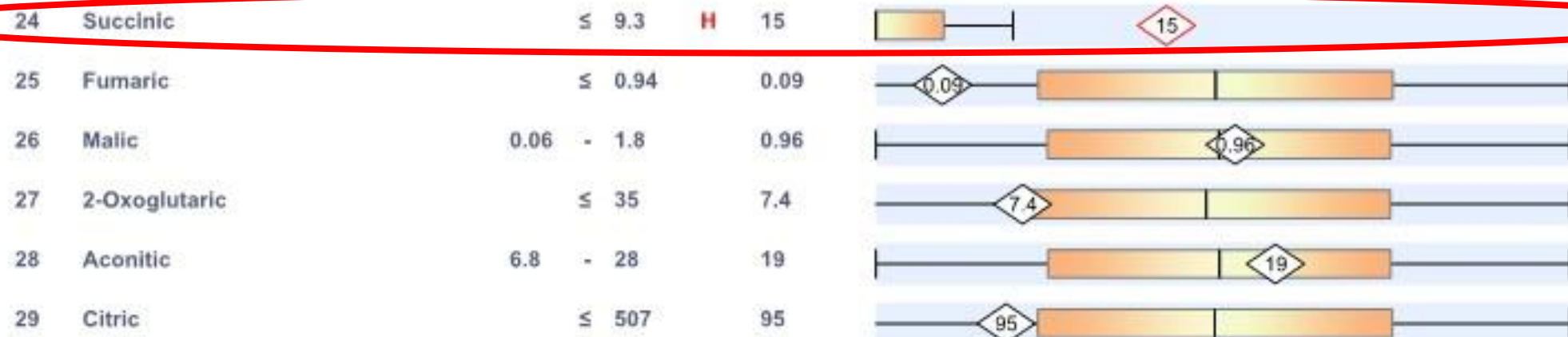
### Oxalate Metabolites



### Glycolytic Cycle Metabolites



### Mitochondrial Markers - Krebs Cycle Metabolites



### Pyrimidine Metabolites - Folate Metabolism

|    |         |        |      |  |
|----|---------|--------|------|--|
| 40 | Uracil  | ≤ 9.7  | 5.3  |  |
| 41 | Thymine | ≤ 0.56 | 0.09 |  |

### Ketone and Fatty Acid Oxidation

|    |                  |            |   |     |  |
|----|------------------|------------|---|-----|--|
| 42 | 3-Hydroxybutyric | ≤ 3.1      | H | 23  |  |
| 43 | Acetoacetic      | ≤ 10       |   | 1.9 |  |
| 44 | 4-Hydroxybutyric | ≤ 4.8      |   | 2.1 |  |
| 45 | Ethylmalonic     | 0.44 - 2.8 |   | 2.3 |  |
| 46 | Methylsuccinic   | 0.10 - 2.2 | H | 4.9 |  |
| 47 | Adipic           | 0.04 - 3.8 | H | 49  |  |
| 48 | Suberic          | 0.18 - 2.2 | H | 33  |  |
| 49 | Sebacic          | ≤ 0.24     | H | 5.0 |  |

### Nutritional Markers

|                         |                  |             |      |      |  |
|-------------------------|------------------|-------------|------|------|--|
| Vitamin B12             |                  |             |      |      |  |
| 50                      | Methylmalonic *  | ≤ 2.3       | 0.74 |      |  |
| Vitamin B6              |                  |             |      |      |  |
| 51                      | Pyridoxic (B6)   | ≤ 34        | 3.7  |      |  |
| Vitamin B5              |                  |             |      |      |  |
| 52                      | Pantothenic (B5) | ≤ 10        | 8.1  |      |  |
| Vitamin B2 (Riboflavin) |                  |             |      |      |  |
| 53                      | Glutaric *       | 0.04 - 0.36 | H    | 0.45 |  |

Vitamin C

## MycoTox Profile





# The Great Plains Laboratory, Inc.

William Shaw, Ph.D Director

11813 W. 77th Street, Lenexa, KS 66214

(913) 341-8949

Fax (913) 341-6207

**GPL-MYCOTOX**



## Fusarium



## Chaetomium globosum



## Multiple Mold Species





**Name of Test:** ED-VASOACTIVE INTEST PEP

**Requested:** 05/05/2020

**Collected:** 30/06/2020

**Reported:** 09/04/20

14:03

This test was performed at Sydney South West Pathology Service  
Contact: (02) 9515 5243

ENDOCRINOLOGY

|     | Ref Interval | Units  | Result |
|-----|--------------|--------|--------|
| VIP | 0.0 - 30.0   | pmol/L | <4.0   |

Note: From Monday 26th August 2019, the VIP assay has changed from Euradiagnostica to DIASource radioimmunoassay. The DIASource method has a negative bias and this is reflected in the change in reference interval (fasting specimen).

**Name of Test:** SE-LEPTIN\*  
**Requested:** 24/02/2020 **Collected:** 17/04/2020 **Reported:** 09/04/2021  
14:03

**Clinical notes:** Hypothyroids on thyrocine- new dose

Clinical Notes : Hypothyroids on thyrocine- new dose

This test was performed by Sydney South West Pathology:  
Contact: (02) 9515 5243

Specimen: Blood

Endocrinology

|        | Result | Units | Ref Interval |
|--------|--------|-------|--------------|
| Leptin | 26.4 H | ng/mL | 3.7 - 11.1   |

Leptin reference range is for fasting specimen.

Billing note: This test is not rebatable by Medicare.  
Non-rebatable Fee: \$30.70 (as at 01/04/2015).

ENDOCRINOLOGY

|                   | Ref Interval | Units  | Result |
|-------------------|--------------|--------|--------|
| Vasopressin Level | <=7.0        | pmol/L | 2.0    |

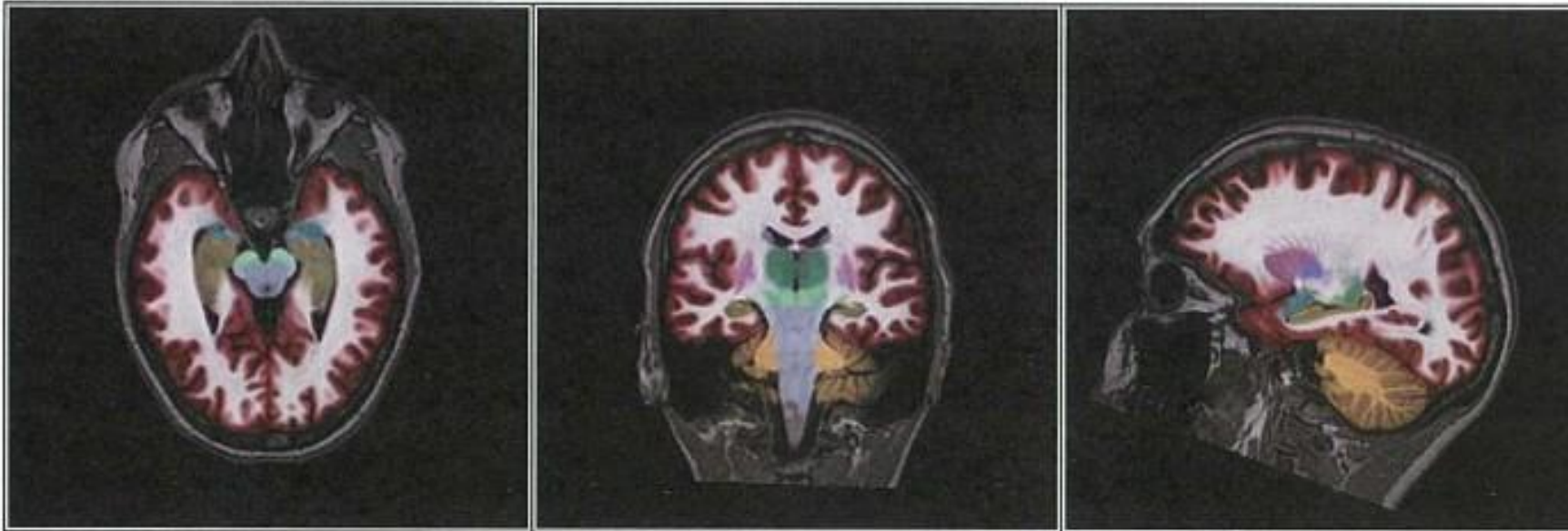
Billing note: This test is not rebatable by Medicare.  
Non-rebatable Fee: \$30.70 (as at 01/04/2015).

Melbourne Pathology NATA No.:2133

Tests Completed: B12,OSMO,U OSMO,DHM-COELTT,TOF, PT RQ FOR RESULTS,ADH\*  
Tests Pending : LEPT\*  
Sample Pending :

~~~~~

## MORPHOMETRY RESULTS



| Intracranial Volume (ICV) (cm <sup>3</sup> ) |                              |                      | 1420.83                      |                      |                                  |
|----------------------------------------------|------------------------------|----------------------|------------------------------|----------------------|----------------------------------|
| Brain Structure                              | LH Volume (cm <sup>3</sup> ) | LH Volume (% of ICV) | RH Volume (cm <sup>3</sup> ) | RH Volume (% of ICV) | Asymmetry Index (%) <sup>*</sup> |
| Forebrain Parenchyma                         | 521.91                       | 36.73                | 527.32                       | 37.11                | -1.03                            |
| Cortical Gray Matter                         | 267.89                       | 18.85                | 271.32                       | 19.10                | -1.27                            |
| Superior Lateral Ventricle                   | 7.12                         | 0.50                 | 6.45                         | 0.45                 | 9.77                             |
| Inferior Lateral Ventricle                   | 0.37                         | 0.03                 | 0.81                         | 0.06                 | -73.88                           |
| Hippocampus                                  | 3.96                         | 0.28                 | 4.21                         | 0.30                 | -6.12                            |
| Amygdala                                     | 2.23                         | 0.16                 | 2.18                         | 0.15                 | 2.41                             |
| Caudate                                      | 3.10                         | 0.22                 | 3.31                         | 0.23                 | -6.55                            |
| Putamen                                      | 5.95                         | 0.42                 | 5.79                         | 0.41                 | 2.81                             |
| Pallidum                                     | 1.05                         | 0.07                 | 0.96                         | 0.07                 | 8.64                             |
| Thalamus                                     | 7.06                         | 0.50                 | 6.79                         | 0.48                 | 3.87                             |
| Cerebellum                                   | 62.43                        | 4.39                 | 60.23                        | 4.24                 | 3.59                             |

<sup>\*</sup>The Asymmetry Index is defined as the percentage difference between left and right volumes divided by their mean.



| Structure                    | Total Volume (cm³) | Percentile |       |
|------------------------------|--------------------|------------|-------|
| Intracranial Volume          | 1421               | -          |       |
| Whole Brain                  | 1192               | 78         |       |
| Forebrain Parenchyma         | 1049               | 86         |       |
| Total Volumes                | Percentiles        |            |       |
|                              | Left               | Right      | Total |
| Cerebral White Matter        | 84                 | 83         | 84    |
| Cortical Gray Matter         | 64                 | 55         | 60    |
| Ventricles                   | 56                 | 55         | 55    |
| Cerebral WM Hypointensities* | 1                  | 1          | 1     |
| Subcortical Structures       |                    |            |       |
| Cerebellar White Matter      | 11                 | 18         | 14    |
| Cerebellar Gray Matter       | 35                 | 26         | 30    |
| Brainstem                    | -                  | -          | 41    |
| Thalamus                     | 48                 | 30         | 38    |
| Ventral Diencephalon         | 84                 | 82         | 84    |
| Basal Ganglia                |                    |            |       |
| Putamen                      | 34                 | 41         | 36    |
| Caudate                      | 68                 | 73         | 70    |
| Nucleus Accumbens            | 90                 | 92         | 93    |
| Pallidum                     | 57                 | 44         | 50    |
| Cingulate                    | 77                 | 99         | 97    |
| Anterior Cingulate           | 70                 | 99         | 97    |
| Posterior Cingulate          | 53                 | 57         | 55    |
| Isthmus Cingulate            | 81                 | 88         | 87    |

| Cortical Brain Regions                  | Percentiles |       |       |
|-----------------------------------------|-------------|-------|-------|
|                                         | Left        | Right | Total |
| Frontal Lobes                           | 33          | 30    | 31    |
| Superior Frontal                        | 20          | 31    | 23    |
| Middle Frontal                          | 49          | 11    | 23    |
| Inferior Frontal                        | 22          | 76    | 46    |
| Lateral Orbitofrontal                   | 64          | 17    | 39    |
| Medial Orbitofrontal                    | 37          | 44    | 40    |
| Paracentral                             | 66          | 64    | 65    |
| Primary Motor                           | 53          | 55    | 53    |
| Parietal Lobes                          | 41          | 32    | 35    |
| Primary Sensory                         | 50          | 39    | 43    |
| Medial Parietal                         | 60          | 35    | 49    |
| Superior Parietal                       | 43          | 64    | 54    |
| Inferior Parietal                       | 71          | 37    | 53    |
| Supramarginal                           | 10          | 13    | 8     |
| Occipital Lobes                         | 96          | 89    | 95    |
| Medial Occipital                        | 97          | 96    | 97    |
| Lateral Occipital                       | 88          | 70    | 85    |
| Temporal Lobes                          | 77          | 83    | 82    |
| Transverse Temporal + Superior Temporal | 58          | 59    | 60    |
| Posterior Superior Temporal Sulcus      | 1           | 38    | 15    |
| Middle Temporal                         | 85          | 55    | 75    |
| Inferior Temporal                       | 71          | 61    | 68    |
| Fusiform                                | 70          | 96    | 90    |
| Parahippocampal                         | 74          | 65    | 72    |
| Entorhinal Cortex                       | 17          | 52    | 28    |
| Temporal Pole                           | 59          | 88    | 78    |
| Amygdala                                | 85          | 92    | 91    |
| Hippocampus                             | 56          | 67    | 62    |

\*White matter hypointensities are abnormally low signal intensity regions within white matter as observed on a T1-weighted MRI scan.

# Case History #3 – Ms JM – 27yoF

- Went on cholestyramine for 6 months - QID dosing
- She stated this helped her significantly
- Lived in family home until age 26
- Moved out into mud brick studio next to parent's house
- ERMI is 8; HERTSMI-2 is 4
- Appears to still be reacting however
- Later was started on a combination of zeolite and bentonite clays and itraconazole
- Charcoal has also been utilized at a dosage of 3 caps daily
- Vitamin B2 has been started at 200mg daily (Riboflavin-5-phosphate)
- A joint telehealth consultation with Dr Mary Ackerley, neuropsychiatrist took place, in which a number of specific recommendations were made

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Lyme Disease Investigation (v4)  
(Diagnostic assays for the detection of Borrelia species)

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SEROLOGY

|                  |               |
|------------------|---------------|
| ELISA IgM        | NOT DETECTED  |
| ELISA IgG        | NOT DETECTED  |
| IFA Total        | NOT AVAILABLE |
| Western Blot IgM | NOT REPORTED  |
| Western Blot IgG | NOT REPORTED  |

PCR  
PCR

NOT REQUESTED

CULTURE  
CULTURE

NOT REQUESTED

COMMENTS

28-06-2021

The enzyme-linked immunosorbent assay (ELISA) is used as a screening assay. The Western Blot (WB), also known as an Immunoblot assay, is used as a confirmatory assay and is normally only used when the ELISA is positive. The WB IgM can often be a false-positive. For a confident diagnosis of Lyme disease both the ELISA IgG and the WB IgG should be positive.

The following assays were utilised in the above testing:

ELISA IgM/IgG : NovaTec NovaLisa (A commercial assay)

Western Blot IgM/IgG : ViraMed ViraStripe (A commercial assay, in which a minimum of 2 bands are required for a positive IgG result)

PCR : In house assay

Culture : In house assay

NATA/



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Lyme Disease Investigation (v3)  
(Western Blot IgM/IgG)

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**SEROLOGY**

Western Blot IgM  
Western Blot IgG

DETECTED  
NOT DETECTED

NATA/



**COMMENTS**

28-06-2021

WB IgM band : p41



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## Bartonella Disease Investigation (v2)

(Diagnostic assays for the detection of Bartonella henselae & Bartonella quintana)

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### SEROLOGY

B. henselae IgM  
B. henselae IgG  
B. quintana IgM  
B. quintana IgG

NOT DETECTED (titre < 48)  
NOT DETECTED (titre < 128)  
NOT DETECTED (titre < 48)  
NOT DETECTED (titre < 128)

### PCR

Bartonella spp. PCR

NOT REQUESTED

### CULTURE

Bartonella spp. Culture

NOT REQUESTED

### COMMENTS

21-06-2021

The absence of antibodies to B.henselae and B.quintana strongly suggests that the patient does NOT have bartonellosis. However another species of Bartonella may have been involved, the antibodies against which were not detectable by this serological assay.

NATA/



## RICKETTSIAL SEROLOGY (v2)

(An immunofluorescence assay detecting IgG and IgM antibody to Rickettsiae)

### SPOTTED FEVER GROUP RICKETTSIA

*R. australis*

(Queensland tick typhus)

*R. honei*

(Flinders Island spotted fever)

*R. conorii*

(Mediterranean spotted fever)

*R. africae*

(African tick bite fever)

*R. rickettsii*

(Rocky Mountain spotted fever)

*R. felis*

(Flea borne spotted fever/Cat flea typhus)

NOT DETECTED (titre < 128)

NOT DETECTED (titre < 128)

NOT DETECTED (titre < 128)

NOT DETECTED (titre < 128)

NOT DETECTED (titre < 128)

NOT DETECTED (titre < 128)

### TYPHUS GROUP RICKETTSIA

*R. prowazekii*

(Epidemic typhus)

*R. typhi*

(Murine typhus)

NOT DETECTED (titre < 128)

NOT DETECTED (titre < 128)

### SCRUB TYPHUS GROUP RICKETTSIA

*Orientia tsutsugamushi*

(Scrub typhus)

Serotype

Gilliam

Karp

Kato

Cowley Beach (Australia)

NOT DETECTED (titre < 128)

NOT DETECTED (titre < 128)

NOT DETECTED (titre < 128)

NOT DETECTED (titre < 128)

*Orientia chuto*

(Scrub typhus)

NOT DETECTED (titre < 128)

### COMMENTS

21-06-2021

No evidence of exposure to any of the rickettsial strains tested. If this was an acute phase specimen please submit a convalescent specimen collected 10-14 days later to test for a change in antibody titre.



NATA/

## Case History #3 – Ms JM – 27yoF

- Was originally diagnosed clinically with borrelia, bartonella and babesia infections by myself and ART practitioner although serology only confirmed possibility of borrelia infection
- Suggested disulfiram, an aldehyde dehydrogenase inhibitor
- Found this helped significantly, and was on 300mg for 3 months
- Then was on a maximal dosage 375mg for 5 months
- Main side-effect was acne
- Methylene Blue was also utilized for the bartonella and babesia infections at a dosage of 25mg daily gradually increasing to 50mg daily gradually increasing to 50mg three times daily
- Azithromycin 125mg daily gradually increasing to 250mg daily plus allicin garlic extract at 1g daily was used along with the methylene blue
- Nitazoxanide 500mg twice daily for four weeks was also instituted for the babesia

# Case History #3 – Ms JM – 27yoF

- While disulfiram appeared to be helpful the patient deteriorated mentally on stopping the medication
- She needed to be restarted on 25mg disulfiram daily to maintain stable moods
- Appeared that a dopamine deficiency was taking place and therefore mucuna pruriens was trialled in addition to the 5-HTP complex. This was as part of the Marty Hinz protocol
- Treated for mast cell activation was also trialled, including loratadine and famotidine, sodium cromoglycate, ketotifen and a quercetin/nigella complex despite negative serology
- This appeared to provide some degree of assistance
- Low dose naltrexone was also utilized at doses up to 9mg before bed
- Dessicated thyroid extract and T3 therapy were also used for subclinical hypothyroidism
- Melatonin was used regularly for sleep disturbance

# Summary – Take-Home Points

## A systematic approach is needed

- Knowing a helpful order of treatment, and how to troubleshoot is vital. Ability to deal with sensitive patients is a must.

## Always think of all different causes of infection and inflammation

- Always think of mould exposure even in someone who says “my house is fine”.
- Always think of stealth infections even in someone who says “I’ve never had a tick bite”.

## Always start with mast cell and amygdala retraining in a sensitive patient

- Vital to decrease sensitivity of a patient to treatment before embarking on further treatment steps. A lot of coaching may be needed to help a patient through this stage.