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Rocky Mountain Analytical®
*Changing lives, one test at a time*

Date of Collection: 2016/10/03
Time of Collection: 12:00AM
Date of Receipt: 2016/10/04
Reported On: 2016/10/07

**RMA FST Enhanced** **Accession: 123456**

**Healthcare Professional**

**Patient**

Age: 7
Date of Birth: 2009/04/25
Gender: Male

RMA FST™
IgG FOOD SENSITIVITY TEST

## FOOD GROUP Report

| RESULT STATUS | NOTE: The limits assigned to individual antigens are based on a statistical analysis of a Canadian population |
|---|---|
| NORMAL | The upper limit for assigning **Normal** status varies by antigen. |
| BORDERLINE | The upper and lower limits for assigning **Borderline** status vary by antigen. |
| ELEVATED | The lower limit for assigning **Elevated** status varies by antigen. |

### Dairy / Egg

| | | | | | |
|---|---|---|---|---|---|
| 1 | Alpha-Lactalbumin (whey) | 9 | Beta-Lactoglobulin (whey) | 99 | Casein |
| 80 | Egg White | 21 | Egg Yolk | 0 | Milk (Buffalo) |
| 112 | Milk (Cow) | 86 | Milk (Goat) | 94 | Milk (Sheep) |

### Grains

| | | | | | |
|---|---|---|---|---|---|
| 39 | Barley | 26 | Couscous | 31 | Durum Wheat |
| 62 | Gliadin | 5 | Malt | 70 | Oat |
| 24 | Rye | 37 | Spelt | 53 | Wheat |
| 26 | Wheat Bran | | | | |

### Grains (Gluten-Free)

| | | | | | |
|---|---|---|---|---|---|
| 5 | Amaranth | 0 | Buckwheat | 10 | Corn |
| 1 | Millet | 6 | Polenta | 3 | Quinoa |
| 19 | Rice | 0 | Tapioca | | |

### Fruit

| | | | | | |
|---|---|---|---|---|---|
| 2 | Apple | 23 | Apricot | 9 | Avocado |
| 6 | Banana | 7 | Black Currant | 21 | Blackberry |
| 0 | Blueberry | 25 | Cherry | 3 | Cranberry |
| 8 | Date | 10 | Fig | 6 | Grape (Black/Red/White) |
| 5 | Grapefruit | 21 | Guava | 6 | Kiwi |
| 3 | Lemon | 7 | Lime | 5 | Lychee |
| 8 | Mango | 2 | Melon (Galia/Honeydew) | 2 | Mulberry |
| 73 | Nectarine | 1 | Olive | 33 | Orange |
| 6 | Papaya | 17 | Peach | 3 | Pear |
| 4 | Pineapple | 2 | Plum | 42 | Pomegranate |



Co-Signing Physician:
Clare Westmacott, MD
Calgary, AB
Phone (403) 278-1405

## Fruit

| | | | | | |
|---|---|---|---|---|---|
| 10 | Raisin | 13 | Raspberry | 10 | Red Currant |
| 0 | Rhubarb | 2 | Strawberry | 26 | Tangerine |
| 18 | Watermelon | | | | |

## Vegetables

| | | | | | |
|---|---|---|---|---|---|
| 5 | Artichoke | 2 | Arugula | 3 | Asparagus |
| 4 | Beet | 2 | Bell Peppers | 13 | Broccoli |
| 7 | Brussels Sprout | 4 | Cabbage (Red) | 28 | Cabbage (Savoy/White) |
| 5 | Carrot | 5 | Cauliflower | 12 | Celery |
| 2 | Chard | 2 | Chicory | 3 | Cucumber |
| 3 | Eggplant | 13 | Fennel (Leaf) | 9 | Leek |
| 4 | Lettuce | 5 | Onion | 30 | Potato |
| 21 | Radish | 4 | Shallot | 14 | Spinach |
| 20 | Squash (Butternut/Carnival) | 2 | Squash, Summer | 3 | Sweet Potato |
| 33 | Tomato | 8 | Turnip | 5 | Watercress |
| 27 | Yuca | | | | |

## Fish / Seafood

| | | | | | |
|---|---|---|---|---|---|
| 10 | Alga Espaguette | 5 | Alga Wakame | 2 | Anchovy |
| 2 | Barnacle | 6 | Bass | 2 | Carp |
| 0 | Caviar | 4 | Clam | 1 | Cockle |
| 11 | Cod | 12 | Crab | 3 | Cuttlefish |
| 0 | Eel | 8 | Haddock | 2 | Hake |
| 2 | Herring | 2 | Lobster | 4 | Mackerel |
| 2 | Monkfish | 10 | Mussel | 1 | Octopus |
| 3 | Oyster | 0 | Perch | 9 | Pike |
| 4 | Plaice | 3 | Razor Clam | 4 | Salmon |
| 1 | Sardine | 8 | Scallop | 0 | Sea Bream (Gilthead) |
| 6 | Sea Bream (Red) | 2 | Shrimp/Prawn | 9 | Snail (Sea Snail/Winkle) |
| 8 | Sole | 0 | Spirulina | 2 | Squid |
| 0 | Swordfish | 3 | Trout | 4 | Tuna |
| 0 | Turbot | | | | |

## Meat

| | | | | | |
|---|---|---|---|---|---|
| 2 | Beef | 2 | Chicken | 0 | Duck |
| 2 | Goat | 3 | Horse | 3 | Lamb |
| 0 | Ostrich | 6 | Ox | 0 | Partridge |
| 3 | Pork | 1 | Quail | 12 | Rabbit |
| 3 | Turkey | 1 | Veal | 5 | Venison |
| 0 | Wild Boar | | | | |

## Herbs / Spices

| | | | | | |
|---|---|---|---|---|---|
| 0 | Aniseed | 6 | Basil | 0 | Bayleaf |
| 0 | Camomile | 9 | Cayenne | 2 | Cinnamon |
| 0 | Clove | 0 | Coriander (Leaf) | 1 | Cumin |
| 6 | Curry (Mixed Spices) | 1 | Dill | 0 | Garlic |
| 0 | Ginger | 7 | Ginkgo | 2 | Ginseng |
| 4 | Hops | 0 | Licorice | 0 | Marjoram |

## Herbs / Spices

| | | | | | |
|---|---|---|---|---|---|
| 1 | Mint | 21 | Mustard Seed | 3 | Nettle |
| 5 | Nutmeg | 5 | Parsley | 1 | Peppercorn (Black/White) |
| 3 | Peppermint | 3 | Red Chili Pepper | 0 | Rosemary |
| 0 | Saffron | 0 | Sage | 0 | Tarragon |
| 0 | Thyme | 0 | Vanilla | | |

## Nuts / Seeds / Legumes

| | | | | | |
|---|---|---|---|---|---|
| 38 | Almond | 34 | Bean (Broad) | 3 | Bean (Green) |
| 32 | Bean (Red Kidney) | 63 | Bean (White Haricot) | 23 | Brazil Nut |
| 4 | Canola | 27 | Cashew Nut | 15 | Chickpea |
| 6 | Coconut | 2 | Flax Seed | 24 | Hazelnut |
| 15 | Lentil | 0 | Macadamia Nut | 58 | Pea |
| 39 | Peanut | 24 | Pine Nut | 56 | Pistachio |
| 4 | Sesame Seed | 26 | Soy Bean | 32 | Sunflower Seed |
| 19 | Tiger Nut | 7 | Walnut | | |

## Miscellaneous

| | | | | | |
|---|---|---|---|---|---|
| 26 | Agar Agar | 16 | Aloe Vera | 3 | Cane Sugar |
| 0 | Caper | 3 | Carob | 4 | Chestnut |
| 2 | Cocoa Bean | 6 | Coffee | 20 | Cola Nut |
| 1 | Honey | 33 | Mushroom | 1 | Tea (Black) |
| 0 | Tea (Green) | 1 | Transglutaminase | 0 | Yeast (Baker's) |
| 13 | Yeast (Brewer's) | | | | |

George Gillson MD, PhD
Medical Director

Note: The College of Physicians and Surgeons of Alberta considers some forms of testing for food reactions to be complementary medicine. Specific IgG quantification has been utilized in research settings to assess and investigate Type I and Type III allergies respectively. However, the assessment of human IgG antibodies specific for individual food antigens is not a recognized diagnostic indicator of allergy. Rocky Mountain Analytical does not diagnose or make treatment recommendations. Data is provided for research and educational purposes only.

IgG FOOD REACTIONS VS IgE FOOD ALLERGIES: IgG food reactions differ significantly from classic IgE food allergies. IgE food allergies are immediate reactions that occur within minutes or hours of consuming a food and may include serious reactions like hives, difficulty breathing and anaphylaxis. In contrast, an IgG food sensitivity is a delayed reaction that occurs hours to days after the food is consumed, with symptoms that may not appear for days or months. Lack of an IgG antibody response to a specific food does not rule out the possibility that the food may elicit an IgE reaction (food allergy). Patients should continue to avoid foods to which they have a known IgE food allergy. Conversely, elevated IgG to a specific food is not diagnostic of IgE food allergy. If symptoms (e.g. hives, difficult breathing) are suggestive of food allergy, the patient should be referred to an Allergist Specialist for specific IgE testing via ImmunoCAP.

IgG REACTIONS: IgG reactions are food sensitivities, not food allergies. When a reactive food is consumed, the IgG antibody forms a complex with the food antigen. Normally, the body is able to eliminate these antibody-antigen complexes, but with excess antigen, small complexes tend to deposit in blood vessel walls where they can cause tissue injury via the release of inflammatory mediators [Brantzaeg 1997]. Over time, this tissue injury may contribute to the development of a variety of health conditions. Research has shown that elimination of IgG reactive foods from the diet improves a variety of health conditions including irritable bowel syndrome and migraine headaches [Atkinson, Alpay]. Eliminating IgG reactive foods has also been reported to help with eczema, mood disturbances, weight gain and other digestive disturbances [Mullin, Lewis, Bentz].

NORMAL REACTIONS: A normal reaction to a food antigen may indicate lack of recent exposure to that food. Therefore, under circumstances of complete avoidance, it is impossible to determine whether the food(s) avoided would elicit a reaction if consumed recently. It is important to note that a normal reaction to a specific food does not mean it can be safely consumed by someone who has previously had a serious reaction to that specific food. Serious reactions to foods (e.g. anaphylaxis or hives) are caused by IgE antibodies, not IgG. Therefore, a normal IgG reaction to a known food allergen is not an indication the tested food is safe to consume.

PATIENT HAS A REACTION TO ONE OR MORE FOOD ANTIGENS NOT CONSUMED REGULARLY. It is possible to have elevated IgG to foods not recently consumed, or to foods that have been specifically avoided (i.e. due to serious previous IgE reaction). Elevated IgG in this circumstance may be due to panallergen reactions [refer to the RMA FST Food Sensitivities and Cross-Reactions document], or to an abundance of the IgG4 subtype antibody, which acts on mast cells and may have a protective effect for IgE reactions and antibodies may remain in circulation for 18 months even with no exposure [Mullin].

GOAT'S MILK AND/OR SHEEP'S MILK ARE BORDERLINE OR ELEVATED but patient may have never consumed: In vitro studies have shown extensive cross reactivity between milks from ruminant species. Significant amino acid sequence homology between milk from cows, goats and sheep mean cross-reactivity is highly probable [URL: www.uptodate.com/contents/milk-allergy-management. Accessed June 11, 2016]. Clinical research has found that a significant percentage of cow's milk allergic patients also react to goat and sheep milks [Pediatr Allergy Immunol. 2012 Mar;23(2):128-32].

SEVERAL LIPID TRANSFER PROTEIN CONTAINING FOODS ARE ELEVATED. Lipid transfer proteins (LTPs) are heat and acid stable, and therefore retain potential allergenicity after cooking or upon ingestion. Foods that have documented cross-reactivity via LTPs include: apple, celery, corn/maize, grape, hazelnut, kiwi, legumes, lettuce, peach, peanut, rice, soy, sunflower, and walnut. Refer to the RMA FST Food Sensitivities and Cross-Reactions document for more information on cross-reactions.

ELEVATED REACTIONS TO FOODS: Interpretation comments are provided for certain foods. Comments appear when related foods give seemingly inconsistant results (e.g. casein normal and cow's milk high) and for reactive foods that are not commonly found in the North American diet. Refer to the RMA Food Reaction Guide for commentary on sources of individual foods or food categories.

**Provider:** **Client:**

**DOB:** 25-Apr-2009

RMA FST™
IgG FOOD SENSITIVITY TEST

# ORDER BY REACTIVITY Report

## ELEVATED FOODS

| | | | | | |
|---|---|---|---|---|---|
| 99 | Casein | 94 | Milk (Sheep) | 86 | Milk (Goat) |
| 73 | Nectarine | 70 | Oat | 63 | Bean (White Haricot) |
| 62 | Gliadin | 56 | Pistachio | 42 | Pomegranate |
| 37 | Spelt | 34 | Bean (Broad) | 33 | Mushroom |
| 33 | Orange | 33 | Tomato | 32 | Sunflower Seed |
| 31 | Durum Wheat | 30 | Potato | | |

## BORDERLINE FOODS

| | | | | | |
|---|---|---|---|---|---|
| 112 | Milk (Cow) | 39 | Peanut | 28 | Cabbage (Savoy/White) |
| 27 | Cashew Nut | 27 | Yuca | 26 | Couscous |
| 26 | Soy Bean | 26 | Tangerine | 26 | Wheat Bran |
| 25 | Cherry | 24 | Pine Nut | 24 | Rye |
| 80 | Egg White | 58 | Pea | 53 | Wheat |
| 39 | Barley | 38 | Almond | 32 | Bean (Red Kidney) |

## NORMAL FOODS

| | | | | | |
|---|---|---|---|---|---|
| 26 | Agar Agar | 24 | Hazelnut | 23 | Apricot |
| 23 | Brazil Nut | 21 | Blackberry | 21 | Egg Yolk |
| 21 | Guava | 21 | Mustard Seed | 21 | Radish |
| 20 | Cola Nut | 20 | Squash (Butternut/Carnival) | 19 | Rice |
| 19 | Tiger Nut | 18 | Watermelon | 17 | Peach |
| 16 | Aloe Vera | 15 | Chickpea | 15 | Lentil |
| 14 | Spinach | 13 | Broccoli | 13 | Fennel (Leaf) |
| 13 | Raspberry | 13 | Yeast (Brewer's) | 12 | Celery |
| 12 | Crab | 12 | Rabbit | 11 | Cod |
| 10 | Alga Espaguette | 10 | Corn | 10 | Fig |
| 10 | Mussel | 10 | Raisin | 10 | Red Currant |
| 9 | Avocado | 9 | Beta-Lactoglobulin (whey) | 9 | Cayenne |
| 9 | Leek | 9 | Pike | 9 | Snail (Sea Snail/Winkle) |
| 8 | Date | 8 | Haddock | 8 | Mango |
| 8 | Scallop | 8 | Sole | 8 | Turnip |
| 7 | Black Currant | 7 | Brussels Sprout | 7 | Ginkgo |
| 7 | Lime | 7 | Walnut | 6 | Banana |
| 6 | Basil | 6 | Bass | 6 | Coconut |
| 6 | Coffee | 6 | Curry (Mixed Spices) | 6 | Grape (Black/Red/White) |
| 6 | Kiwi | 6 | Ox | 6 | Papaya |
| 6 | Polenta | 6 | Sea Bream (Red) | 5 | Alga Wakame |
| 5 | Amaranth | 5 | Artichoke | 5 | Carrot |

## NORMAL FOODS

| | | | | | |
|---|---|---|---|---|---|
| 5 | Cauliflower | 5 | Grapefruit | 5 | Lychee |
| 5 | Malt | 5 | Nutmeg | 5 | Onion |
| 5 | Parsley | 5 | Venison | 5 | Watercress |
| 4 | Beet | 4 | Cabbage (Red) | 4 | Canola |
| 4 | Chestnut | 4 | Clam | 4 | Hops |
| 4 | Lettuce | 4 | Mackerel | 4 | Pineapple |
| 4 | Plaice | 4 | Salmon | 4 | Sesame Seed |
| 4 | Shallot | 4 | Tuna | 3 | Asparagus |
| 3 | Bean (Green) | 3 | Cane Sugar | 3 | Carob |
| 3 | Cranberry | 3 | Cucumber | 3 | Cuttlefish |
| 3 | Eggplant | 3 | Horse | 3 | Lamb |
| 3 | Lemon | 3 | Nettle | 3 | Oyster |
| 3 | Pear | 3 | Peppermint | 3 | Pork |
| 3 | Quinoa | 3 | Razor Clam | 3 | Red Chili Pepper |
| 3 | Sweet Potato | 3 | Trout | 3 | Turkey |
| 2 | Anchovy | 2 | Apple | 2 | Arugula |
| 2 | Barnacle | 2 | Beef | 2 | Bell Peppers |
| 2 | Carp | 2 | Chard | 2 | Chicken |
| 2 | Chicory | 2 | Cinnamon | 2 | Cocoa Bean |
| 2 | Flax Seed | 2 | Ginseng | 2 | Goat |
| 2 | Hake | 2 | Herring | 2 | Lobster |
| 2 | Melon (Galia/Honeydew) | 2 | Monkfish | 2 | Mulberry |
| 2 | Plum | 2 | Shrimp/Prawn | 2 | Squash, Summer |
| 2 | Squid | 2 | Strawberry | 1 | Alpha-Lactalbumin (whey) |
| 1 | Cockle | 1 | Cumin | 1 | Dill |
| 1 | Honey | 1 | Millet | 1 | Mint |
| 1 | Octopus | 1 | Olive | 1 | Peppercorn (Black/White) |
| 1 | Quail | 1 | Sardine | 1 | Tea (Black) |
| 1 | Transglutaminase | 1 | Veal | 0 | Aniseed |
| 0 | Bayleaf | 0 | Blueberry | 0 | Buckwheat |
| 0 | Camomile | 0 | Caper | 0 | Caviar |
| 0 | Clove | 0 | Coriander (Leaf) | 0 | Duck |
| 0 | Eel | 0 | Garlic | 0 | Ginger |
| 0 | Licorice | 0 | Macadamia Nut | 0 | Marjoram |
| 0 | Milk (Buffalo) | 0 | Ostrich | 0 | Partridge |
| 0 | Perch | 0 | Rhubarb | 0 | Rosemary |
| 0 | Saffron | 0 | Sage | 0 | Sea Bream (Gilthead) |
| 0 | Spirulina | 0 | Swordfish | 0 | Tapioca |
| 0 | Tarragon | 0 | Tea (Green) | 0 | Thyme |
| 0 | Turbot | 0 | Vanilla | 0 | Wild Boar |
| 0 | Yeast (Baker's) | | | | |