

# HAIR ELEMENTS



**PATIENT:** No 51  
**SEX:** Female  
**AGE:** 5  
**Location:** Annapolis, USA

| POTENTIALLY TOXIC ELEMENTS |                        |                 |                  |                  |
|----------------------------|------------------------|-----------------|------------------|------------------|
| TOXIC ELEMENTS             | RESULT $\mu\text{g/g}$ | REFERENCE RANGE | PERCENTILE       |                  |
|                            |                        |                 | 68 <sup>th</sup> | 95 <sup>th</sup> |
| Aluminum                   | 3.7                    | < 8.0           |                  |                  |
| Antimony                   | 0.016                  | < 0.066         |                  |                  |
| Arsenic                    | 0.071                  | < 0.080         |                  |                  |
| Beryllium                  | < 0.01                 | < 0.020         |                  |                  |
| Bismuth                    | 0.008                  | < 0.13          |                  |                  |
| Cadmium                    | 0.11                   | < 0.10          |                  |                  |
| Lead                       | 0.12                   | < 1.0           |                  |                  |
| Mercury                    | 0.07                   | < 0.40          |                  |                  |
| Platinum                   | < 0.003                | < 0.005         |                  |                  |
| Thallium                   | < 0.001                | < 0.010         |                  |                  |
| Thorium                    | < 0.001                | < 0.005         |                  |                  |
| Uranium                    | 0.001                  | < 0.060         |                  |                  |
| Nickel                     | 0.03                   | < 0.40          |                  |                  |
| Silver                     | 0.04                   | < 0.20          |                  |                  |
| Tin                        | 0.11                   | < 0.30          |                  |                  |
| Titanium                   | 0.64                   | < 1.0           |                  |                  |
| Total Toxic Representation |                        |                 |                  |                  |

| ESSENTIAL AND OTHER ELEMENTS |                        |                 |                   |                  |                  |                  |                    |
|------------------------------|------------------------|-----------------|-------------------|------------------|------------------|------------------|--------------------|
| ELEMENTS                     | RESULT $\mu\text{g/g}$ | REFERENCE RANGE | PERCENTILE        |                  |                  |                  |                    |
|                              |                        |                 | 2.5 <sup>th</sup> | 16 <sup>th</sup> | 50 <sup>th</sup> | 84 <sup>th</sup> | 97.5 <sup>th</sup> |
| Calcium                      | 441                    | 140- 500        |                   |                  |                  |                  |                    |
| Magnesium                    | 32                     | 15- 45          |                   |                  |                  |                  |                    |
| Sodium                       | 1200                   | 12- 90          |                   |                  |                  |                  |                    |
| Potassium                    | 520                    | 9- 60           |                   |                  |                  |                  |                    |
| Copper                       | 7.9                    | 10- 22          |                   |                  |                  |                  |                    |
| Zinc                         | 250                    | 100- 190        |                   |                  |                  |                  |                    |
| Manganese                    | 0.10                   | 0.20- 0.55      |                   |                  |                  |                  |                    |
| Chromium                     | 0.34                   | 0.26- 0.50      |                   |                  |                  |                  |                    |
| Vanadium                     | 0.035                  | 0.030- 0.10     |                   |                  |                  |                  |                    |
| Molybdenum                   | 0.029                  | 0.048- 0.13     |                   |                  |                  |                  |                    |
| Boron                        | 3.5                    | 0.35- 3.0       |                   |                  |                  |                  |                    |
| Iodine                       | 3.5                    | 0.25- 1.3       |                   |                  |                  |                  |                    |
| Lithium                      | 0.040                  | 0.007- 0.023    |                   |                  |                  |                  |                    |
| Phosphorus                   | 264                    | 160- 250        |                   |                  |                  |                  |                    |
| Selenium                     | 0.88                   | 0.95- 1.7       |                   |                  |                  |                  |                    |
| Strontium                    | 0.52                   | 0.19- 2.0       |                   |                  |                  |                  |                    |
| Sulfur                       | 48300                  | 45500- 53000    |                   |                  |                  |                  |                    |
| Barium                       | 0.14                   | 0.16- 1.2       |                   |                  |                  |                  |                    |
| Cobalt                       | 0.004                  | 0.013- 0.035    |                   |                  |                  |                  |                    |
| Iron                         | 9.1                    | 8.0- 19         |                   |                  |                  |                  |                    |
| Germanium                    | 0.038                  | 0.045- 0.065    |                   |                  |                  |                  |                    |
| Rubidium                     | 0.67                   | 0.012- 0.16     |                   |                  |                  |                  |                    |
| Zirconium                    | 0.062                  | 0.030- 1.0      |                   |                  |                  |                  |                    |

| SPECIMEN DATA             |                      |  |  | RATIOS          |               |                       |
|---------------------------|----------------------|--|--|-----------------|---------------|-----------------------|
| <b>COMMENTS:</b>          |                      |  |  | <b>ELEMENTS</b> | <b>RATIOS</b> | <b>EXPECTED RANGE</b> |
| Date Collected: 9/4/2006  | Sample Size: 0.201 g |  |  | Ca/Mg           | 13.8          | 4- 30                 |
| Date Received: 9/8/2006   | Sample Type: Head    |  |  | Ca/P            | 1.67          | 1- 12                 |
| Date Completed: 9/14/2006 | Hair Color:          |  |  | Na/K            | 2.31          | 0.5- 10               |
|                           | Treatment:           |  |  | Zn/Cu           | 31.6          | 4- 20                 |
| Methodology: ICP-MS       | Shampoo: No Rinse    |  |  | Zn/Cd           | > 999         | > 800                 |