



LAB #: H160616-2525-1
 PATIENT: Ulf Lunge
 ID: LUNGE-U-00005
 SEX: Male
 AGE: 55

CLIENT #: 25965
 DOCTOR: Klaus D. Runow, MD
 Ifu- Diagnostic Center Inst. F. Environmental Medicine
 Buttlarstr. 4 A
 D-34466 Wolfhagen, GERMANY

Toxic Element Exposure Profile; Hair

		TOXIC METALS		PERCENTILE	
		RESULT µg/g	REFERENCE INTERVAL	68 th	95 th
Arsenic	(As)	0.073	< 0.20		
Lead	(Pb)	0.08	< 5.0		
Mercury	(Hg)	1.1	< 3.0		
Cadmium	(Cd)	< 0.009	< 0.30		
Chromium	(Cr)	0.49	< 0.95		
Beryllium	(Be)	< 0.01	< 0.050		
Cobalt	(Co)	0.002	< 0.080		
Nickel	(Ni)	0.03	< 0.60		
Zinc	(Zn)	190	< 270		
Copper	(Cu)	23	< 60		
Thorium	(Th)	< 0.001	< 0.005		
Thallium	(Tl)	< 0.001	< 0.005		
Barium	(Ba)	0.10	< 3.0		
Cesium	(Cs)	< 0.002	< 0.010		
Manganese	(Mn)	0.06	< 1.3		
Selenium	(Se)	0.67	< 2.1		
Bismuth	(Bi)	0.004	< 5.0		
Vanadium	(V)	0.053	< 0.20		
Silver	(Ag)	0.03	< 0.50		
Antimony	(Sb)	0.012	< 0.15		
Palladium	(Pd)	0.010	< 0.010		
Aluminum	(Al)	1.2	< 19		
Platinum	(Pt)	< 0.003	< 0.010		
Tungsten	(W)	0.002	< 0.015		
Tin	(Sn)	0.04	< 0.80		
Uranium	(U)	< 0.001	< 0.20		
Gold	(Au)	0.067	< 0.30		
Tellurium	(Te)	< 0.05	< 0.050		
Germanium	(Ge)	0.031	< 0.045		
Titanium	(Ti)	0.41	< 1.0		
Gadolinium	(Gd)	0.001	< 0.008		

SPECIMEN DATA

Comments:

Date Collected: 06/09/2016
 Date Received: 06/16/2016
 Date Completed: 06/18/2016

Method: ICP-MS
 <dl: less than detection limit
 µg/g = ppm

Sample Type: Head
 Sample Size: 0.204 g
 Hair Color:
 Treatment:
 Shampoo:

Metals are listed in descending priority order based upon data from the Agency for Toxic Substances and Disease Registry which considers not only the relative toxicity per gram metal, but also the frequency for occurrence of exposure.

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LAB#: H160616-2534-1
 PATIENT: Ulf Lunge
 ID: LUNGE-U-00002
 SEX: Male
 AGE: 55

CLIENT#: 25965



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Toxic & Essential Elements; Hair

TOXIC METALS			68 th	95 th
	RESULT µg/g	REFERENCE INTERVAL		
Aluminium (Al)	1.3	< 7.0		
Antimon (Sb)	< 0.01	< 0.066		
Arsen (As)	0.074	< 0.080		
Barium (Ba)	0.08	< 1.0		
Beryllium (Be)	< 0.01	< 0.020		
Wismut (Bi)	< 0.002	< 2.0		
Cadmium (Cd)	< 0.009	< 0.065		
Blei (Pb)	0.08	< 0.80		
Quecksilber (Hg)	1.2	< 0.80		
Platin (Pt)	< 0.003	< 0.005		
Thallium (Tl)	< 0.001	< 0.002		
Thorium (Th)	< 0.001	< 0.002		
Uran (U)	< 0.001	< 0.060		
Nickel (Ni)	0.04	< 0.20		
Silber (Ag)	0.02	< 0.08		
Zinn (Sn)	0.02	< 0.30		
Titan (Ti)	0.37	< 0.60		
toxische Gesamtbelastung				

ESSENTIAL AND OTHER ELEMENTS			PERCENTILE				
	RESULT µg/g	REFERENCE INTERVAL	2.5 th	16 th	50 th	84 th	97.5 th
Calcium (Ca)	205	200- 750					
Magnesium (Mg)	23	25- 75					
Natrium (Na)	28	20- 180					
Kalium (K)	19	9- 80					
Kupfer (Cu)	20	11- 30					
Zink (Zn)	200	130- 200					
Mangan (Mn)	0.07	0.08- 0.50					
Chrom (Cr)	0.58	0.40- 0.70					
Vanadium (V)	0.064	0.018- 0.065					
Molybdaen (Mo)	0.020	0.025- 0.060					
Bor (B)	1.3	0.40- 3.0					
Jod (I)	0.68	0.25- 1.8					
Lithium (Li)	< 0.004	0.007- 0.020					
Phosphor (P)	163	150- 220					
Selen (Se)	0.67	0.70- 1.2					
Strontium (Sr)	0.12	0.30- 3.5					
Schwefel (S)	48000	44000- 50000					
Kobalt (Co)	0.004	0.004- 0.020					
Eisen (Fe)	8.8	7.0- 16					
Germanium (Ge)	0.029	0.030- 0.040					
Rubidium (Rb)	0.016	0.011- 0.12					
Zirkonium (Zr)	< 0.007	0.020- 0.44					

COMMENTS:	SPECIMEN DATA		RATIOS		
	ELEMENTS	RATIOS	RANGE		
Date Collected: 06/09/2016	Sample Size: 0.201 g	Ca/Mg	8.91	4- 30	
Date Received: 06/16/2016	Sample Type: Head	Ca/P	1.26	0.8- 8	
Date Completed: 06/18/2016	Hair Color:	Na/K	1.47	0.5- 10	
Methodology: ICP/MS	Treatment:	Zn/Cu	10	4- 20	
	Shampoo:	Zn/Cd	> 999	> 800	