IN THE MATTER OF THE CLAIM OF DOUGLAS F. COPP
ON THE SEPTEMBER 11TH VICTIM COMPENSATION FUND OF 2001

STATE OF CALIFORNIA)
) ss.
COUNTY OF Sonoma)

CERTIFICATION OF MEDICAL RECORDS

Timothy J. Smith, MD being first duly sworn, deposes and states as follows:

1. I am the Custodian of the Medical Records of Timothy J. Smith, M.D.

2. I am providing this certification in response to a properly executed authorization for release of Douglas F. Copp's medical records.

3. The documents and things attached to this certification constitute true, correct, and complete photocopies of all medical records maintained by Timothy J. Smith, M.D. concerning Mr. Copp – minus progress notes and other electronically stored materials -- from November 5, 2002, through the date of this certification

FURTHER AFFIANT SAYETH NAUGHT.

Timothy J. Smith, MD
Medical Records Custodian

On August 12, 2003, Timothy J. Smith, MD personally appeared before me and, having been first duly sworn, signed the foregoing instrument.

Patricia B. Murray
Notary Public

My commission expires:

03-03-04

PATRICIA B. MURRAY
Commission # 1254381
Notary Public - California
Sonoma County
My Comm. Expires Mar 3, 2004

TIMOTHY J. SMITH, M.D.
2635 REGENT STREET
BERKELEY, CALIFORNIA 94704
TELEPHONE (510) 548-8022

Kip Purcell, Attorney-at-Law
Rodey, Dickason, Sloan, Akin, & Robb, P.A.
Counselors and Attorneys at Law
201 Third Street NW, Suite 2200
Albuquerque, New Mexico 87102

August 10, 2003

Re: Mr. Douglas Copp

Dear Mr. Purcell:

Mr. Douglas Copp is 51 year old patient under my care who was permanently disabled as a result of multiple injuries sustained while functioning as a rescue worker at the World Trade Center collapse on September 11, 2001.

As founder and executive director of American Rescue Team International, Doug Copp has worked at every major world disaster in the past 15 years. With experience in hundreds of building collapses (the WTC were buildings numbers 893 and 894) Mr. Copp is the most experienced rescue worker in the world.

Mr. Copp was flown by private jet to Ground Zero on September 12, 2001, where he began searching for trapped victims in the six floors below Ground Zero. Because fires were raging above, and the entire subterranean area was considered extremely unstable, other less experienced teams were not allowed there. These areas were even more toxic than the areas above because of the lack of ventilation, molds, and toxic chemicals being flushed by water from the fire hoses into this space.

For a week Mr. Copp spent 20 hours a day working in this extremely toxic area, directing his team and searching for trapped individuals. During this time he was exposed to an toxic array of poisonous

chemicals of unprecedented proportions--even by the new standards being set six floors above him.

Despite the dangerous nature of his work, Mr. Copp had always been healthy, robust, and athletic prior to 9/11/01. He was under treatment for no medical condition, and took no medications. Although he had risked his life countless times, crawling into partially collapsed buildings, he had never sustained an injury.

About Doug Copp

Prior to 9/11, Mr. Copp enjoyed worldwide fame as the world's most experienced rescue worker. In 1985, having saved the life of a 9 day old baby from a maternity ward in a collapsed hospital in Mexico City, he decided to devote his life to rescue. He points with pride to the over 125,000 lives he has saved throughout an illustrious career. He has been awarded dozens of medals and keys to cities by grateful diplomats around the world. He has made over 800 TV appearances, usually as the most experienced rescue worker on over one hundred major disaster scenes. He has been featured in 8 documentaries, and has appeared on BBC several times. Also an inventor, Mr. Copp has developed several advanced technological devices designed to make saving lives easier for rescue workers, and has 32 inventions to his credit. His organization, American Rescue Team International, has members in 59 countries. Mr. Copp has been instrumental in training over ten thousand rescue workers through lectures and training seminars he gives at every disaster and training videos published in North America and Australia.

Mr. Copp has generated great admiration, respect and appreciation from many world leaders who--having been trapped in the throes of a disaster without preparedness or a workable plan--found themselves dependent upon, and extremely grateful for, Doug's expertise. Among these are President Fujimori of Peru and President Duarte of El Salvador.

Mr. Copp has been an invited lecturer at dozens of institutions of higher education, and has given hundreds of lectures. Three of these were recently televised live throughout all of South America.

The chancellor of the National University of Peru recently presented a medal to Mr. Copp honoring him as the year's most most noteworthy individual. The ceremony was carried on Peruvian national television.

Medical Review

I first saw Doug Copp in my office on September 23, 2002. At that time, because of dyspnea, he was barely able to climb the steps to my second floor office. He was extremely short of breath even while sitting. He related to me, with frequent pauses to get air, the story of his involvement in the World Trade Center rescue operation. He related his fourteen day experience, probing his way in the darkness through a toxic brew of chemicals, mold, and water in an attempt to locate and rescue survivors who might still be trapped.

Immediately following the World Trade Center collapse, Mr. Copp's most debilitating symptoms related to his back and respiratory system. He had slipped and injured his lumbar spine while four stories below the WTC, causing low back pain, groin pain, and numbness in the left leg.

On the third day of rescue, he began noticing changes in his voice and respiration, caused by the ongoing exposure to toxic fumes and molds. This had persisted and worsened in the year that had passed since the end of the rescue effort. He complained that "I get out of breath doing just about anything, even eating." He experienced a constant pain in his chest, and an ongoing feeling that with the next breath his lungs would go into spasm. He was taking Xopenex and Albuterol. Indeed he had already been hospitalized twice for acute reactive airway disease with life threatening bronchospasm, and had been put on oral prednisone to reduce the respiratory allergic hyperreactivity.

In addition to shortness of breath and frequent asthmatic attacks, he had a variety of other complaints, all of which began during or shortly after September 11, 2001. Since 9/11 Mr. Copp had become edematous and had gained 50 pounds, presumably due to side effects of the prednisone. He had developed hypertension, and was taking Tiazac 120

General
- Inability to walk farther than 30 to 40 ft without resting
- Low thyroid
- Heartburn and Gastro-Esophageal Reflux Disease
- Absence of sex drive
- Frequent urination
- Water retention and bloating
- Distended abdomen
- Weight increase
- Feels lousy...and "just plain sick"

Neurological and Neuropsychiatric
- Disorientation
- Memory problems
- Difficulty concentrating
- Difficulty sleeping
- Cerebral edema, causing
    - Dementia
    - Glaucoma
    - Blurred vision
    - Optic nerve cupping
    - Constant headache
    - Earaches
    - Reduced hearing

- Respiratory
    - Constant pain in chest
    - Difficulty speaking without prolonged breaks for breath
    - Hyperventilation
    - Constant sense of chest spasm
    - Frequent chest and upper left arm pain

Immunological
- Extreme reactions to cigarette smoke, air pollution, ambient volatile chemicals
- Extreme reactions to heat and stillness of air
- Irritability
- Sinus blockage
- Dry eyes

<u>Overview of Injuries</u>

mg. daily . Whereas prior to 9/11 he could "eat anything," he now had developed a sensitive stomach, and experienced heartburn and indigestion on a regular basis. He had developed a chronic allergic nasosinusitis.

In terms of neurological symptomatology, he complained that ever since 9/11 he was having episodes of disorientation, memory problems, difficulty concentrating, poor sleep, and blurred vision. A constant headache, fluctuating in intensity, made it "very difficult to do anything."

He told me that he had become very reactive to everyday odors that previously had never been a problem. Now gasoline fumes, solvents, glue, perfumes, smoke, dust, mold, and other common airborne chemicals elicit powerful respiratory attacks. "Now I look at someone with a cigarette as if they are aiming a gun at me."

In subsequent months he developed cerebral allergic reactions in which exposure to any of these allergens triggered an exacerbation of his cerebral edema (swollen brain) with consequent heightened headache and dementia. These have become his most chronic and debilitating problems, and will be discussed below.

Symptoms and Health Problems Secondary to WTC exposure

Please note that prior to his World Trade Center exposure, Mr. Copp was perfectly healthy.

Primary health problems

- Toxic encephalopathy with dementia
- Cerebral allergic hypersensitivity reaction
- Cerebral edema with optic nerve cupping
- World Trade Center cough and syndrome (WTCS)
- Reactive airway disease with chronic immune activation, bronchial edema, and bronchospasm
- Hypertension

Other Symptoms, Signs, and Complaints

The complex and unique mixture of toxins presented by the WTC collapse is unprecedented in human history. The environment to which Mr. Copp was exposed was a mixture of vapor, smoke, and very fine particles that originally made up the materials of the WTC, its contents, and the aircraft that struck it. A complete listing would include tens of thousands of chemicals: cement, glass, asbestos, superheated volatilized polyvinylidene chloride (PVC), polyethylene, acrylonitrile-butadiene-styrene (ABS), reinforced thermosetting resin pipes (RTRP), vinyl coated wiring, carpet, office furniture, hydraulic oil, fuel oil, diesel fuel, jet fuel, cement and drywall dust, organic particulates from burning plastic such as polyvinyl chloride, polychlorinated biphenyls (PCBs), dioxins and other polynuclear aromatic hydrocarbons, thousands of combustion product chemicals, airplane components, burning human bodies, and vaporized toxic metals such as lead, copper, cadmium, tin, iron, steel, mercury.

Mr. Copp's WTC-induced health problems were caused by inhaled and dermatologically absorbed components of these dust and smoke borne toxins. The combined effect of these toxins is impossible to assess, but it is safe to say that all organs and tissues would be adversely affected. In this patient, the immune system, respiratory system, and central nervous system were most profoundly affected. Although the CNS symptoms are most disabling, the most profound symptoms and problems disabling Mr. Copp actually stem from immune dysfunction with multisystem repercussions, so I will address that first.

Immune System Sensitization, Activation, and Hyperreactivity

For six days, Mr. Copp waded in a toxic soup, breathed toxic air, and had toxins smeared on his body surface. It is unlikely that anyone has ever in human history been exposed to as concentrated or complex a mixture of dangerous chemicals. This mixture placed an overwhelming burden on his immune system, which generated, in response, many hundreds or perhaps thousands of types of antibody molecules (at least one for each toxic chemical). Mr. Copp now, following this overwhelming exposure, experiences ongoing allergic hypersensitivity reactions caused by reexposure to similar molecules in the environment.

Sensitized mast cells in Mr. Copp's brain, lungs, and elsewhere cause ongoing allergic reactions. Because his immune cells were "sensitized" by the WTC overload of toxins and fungal allergens, they are now on "hair trigger." His entire immune system now overreacts to even very small exposures to similar chemicals. Immunological testing has revealed elevated antibodies to an array of fungal microorganisms, including Alternaria Tenuis, Aspergillus fumigatum, Candida species, Cladosporium herbarium, Epicoccum nigrum, Geotrichum candidum, Pullularia pullulans, and Rhodotorula glutinis.

In effect, this patient's immune memory cells are hypervigilant and overreact. The ambient pollution to which we are all exposed has become a great danger to Mr. Copp because his damaged immune system now massively overreacts. The sustained immune reactivity in his brain and bronchioles causes ongoing symptoms. Lung symptoms are limited to recurrent asthmatic (reactive airway disease) type reactions. The consequences in the brain, however are far more severe and disabling: cerebral edema, dementia, and chronic headache. Allergic hypersensitivity reactions like these in brain and lung are also accompanied by ongoing local tissue damage, which perpetuates the process.

Although the prognosis is different from one person to the next, once an individual's immune system has been damaged this way, there is little likelihood that it will return to normal. These patients live out their lives with environmental illness, always on the verge of another acute exacerbation of their extreme allergic hypersensitivity. Before the WTC exposure, when Mr. Copp was exposed to smoke, it did not bother him. Now, because of immune sensitization, even a small amount of secondhand cigarette smoke causes a violent immune overreaction, and he experiences a classic severe asthmatic reaction. This has occurred many times and has sent him to the hospital on more than one occasion.

This patient's history and symptom picture are diagnostic of environmental illness with multiple acquired chemical sensitivities. As a result of cerebral allergic reactions, he experiences an underlying chronic cerebral edema, an inflammatory swelling of the brain caused by allergic

hypersensitization, which causes constant low grade headaches, speech disorder, and dementia. He manifests grossly impaired memory and concentration. Acute exposures trigger an immediate exacerbation above his baseline symptomatology. An example of a cerebral reaction is that when Mr. Copp is exposed to the occasional transient fumes while refilling at a gas station, or a whiff of glue, or even ambient pollution, he now suffers an immediate and severe exacerbation of the chronic low grade headaches, confusion, and disorientation caused by this ongoing immune hyper-reactive state.

Ophthalmological examination of Mr. Copp by Dr. DeMonaco revealed optic nerve cupping, a retinal manifestation of the increased pressure (AKA cerebral edema) in his intracranial space.

Central Nervous System

As a result of the multiple chemical exposures at the World Trade Center, Mr. Copp suffers from a toxic encephalopathy and environmental illness. He experiences cerebral hypersensitivity reactions causing cerebral inflammation and edema. This results in compromised cognitive functioning. Neuropsychological testing performed by Tony J. Kreuch, Psy.D., ABPN, on April 23, 2003 revealed significant cerebral impairment, including memory deficit, impaired concentration, decreased powers of reasoning, and significant impairment of problem solving ability. Dr. Kreuch finds that Mr. Copp suffers from "neuropsychological dysfunction, most likely related to a toxic exposure within a previously high functioning individual. Affected areas include attention, concentration, processing speed, working memory, and acquisition, storage, and retrieval, in addition to executive conceptualization and flexibility of cognition." Dr. Kreuch went on to recommend pharmacological management, and individual counseling with referrals to a psychiatrist, psychotherapist, and speech-language pathologist.

Mr. Copp now evidences organic brain syndrome with dementia, induced by exposure to organic solvents, heavy metals, and other chemicals. He has cerebral edema, with constant headaches, as a consequence of inflammatory changes in the brain caused by exposure

to an array of toxic chemicals.

He has lost the ability to focus his thoughts, and is often unable to remember what he was doing. "I am constantly losing things, locking my keys in the car. Can't remember things. It is a lot like Alzheimer's, I think. I have to stop and think, "What am I doing? And a lot of the time I can't remember what I was doing."

Toxins, autoantibodies, and/or toxin-mediated allergic sensitization of brain tissue are all present and responsible for the brain swelling or cerebral edema. Diamox (500 mg. three times a day) has afforded significant relief from the constant headaches, earaches, eye pain, and feelings that his head was swollen. This response confirms the hypothesis that these symptoms were caused by allergy-induced cerebral edema. The dementia remains unchanged, however. He has compromised concentration, memory, and reasoning capabilities.

According to Mr. Copp: "I've been at more than one major disaster where the president is thinking of quitting, the generals are running around tearing their hair out, needing to do something, but not knowing what to do--and this is when I'm at my best. I am extremely calm under stress. Stress actually relaxes me, and this is because I never felt so alive as when I was solving problems. This is what I was meant to do. Now, I am unable to think clearly. I have great difficulty solving problems, and thinking is actually painful. Now I have lost so much of my thinking and concentration and memory that there is no way I could manage a disaster scene like I used to--it would be impossible."

Respiratory System

On September 15, 2001, having spent three days searching for people under Ground Zero, Mr. Copp first noticed, during a television interview, that his voice had changed, and that he had begun to cough. Over the next ten days he continued to experience increasingly severe respiratory symptoms, primarily cough and shortness of breath. These were accompanied by pain and tightness in the chest.

The severity of the cough, shortness of breath, and chest tightness

continued to increase, and on September 27, 2001, while in Santa Fe, New Mexico, Mr. Copp experienced a severe acute attack in which he felt unable to breathe. He went to the local Emergency Room where he was treated with steroids and bronchodilators.

Since that time, Mr. Copp has continued to experience severe ongoing respiratory distress, with ongoing dyspnea, cough, and chest pain. Unable to walk even short distances without exceeding his lung's ability to supply his tissues with sufficient oxygen, he has been rendered totally incapacitated.

Prior to seeing me, Mr. Copp's respiratory disorder had been treated as if it were asthma and bronchitis, using conventional medications such as Advair discus and Albuterol. He had been given inhalers, prednisone, and antibiotics, but with only marginal success in controlling the symptoms. Prednisone had been effective at suppressing the abnormal immune responses, but the price in terms of weight and water gain, bone mass and muscle loss, mental symptoms, immune system suppression, and adrenal atrophy had been detrimental to his overall health and decreased the probability of complete recovery, so he successfully weaned off of steroids several months ago.

It has been well established that exposure to xenobiotic (foreign to living systems) toxins causes immune dysfunction. In Mr. Copp's case, these foreign chemicals caused tissue damage, and immune dysfunction, as described above.

In the respiratory epithelium and elsewhere, xenobiotic exposure has altered protein molecules in his respiratory tree, causing subsequent autoimmune reactions in which the altered proteins are mistaken by his immune cells as foreign and then attacked by antibodies, natural killer cells, and macrophages. The resulting inflammatory reaction manifests in Mr. Copp as chronically inflamed respiratory tissue, shortness of breath, and chronic cough.

Exposure to xenobiotics (including the initial exposure, ongoing low level exposure, and exposure from xenobiotics later released from fatty tissue stores) also causes immunostimulation, which results in spurious immune attacks on normal body proteins. This further inflames the

respiratory cells, lowering the threshold for bronchospasm and cough. The autoimmune reactive symptoms and damage to normal protein activate complement cascades which cause more local tissue injury and further lower the threshold for bronchospasm and cough. the result is chronic asthma. This problem has been addressed by implementing a combination of symptom suppressive medications in conjunction with a broad based nutritional supplementation program designed to support and heal the respiratory and immune systems.

Hypertension Mr. Copp takes the blood pressure medication Tiazac 120 mg. daily for hypertension of unknown--but presumably WTC--origin. Toxin mediated neurological damage to the sympathetic nervous system can cause hypertension. Mr. Copp had no hypertension prior to 9/11/01.

Hypothyroidism He is in good control at 0.25 mg Synthroid daily.

Low back pain Mr. Copp was seen by Serena Hu, an orthopedist at the University of California, San Francisco who referred him to Neurosurgeon Philip R. Weinstein, M.D. also at UCSF medical Center, who referred Mr. Copp to a neurologist. He was also seen by Dr. Richard Radecki, physical medicine, but could not be fully worked up because an MRI could not be performed due to metal in his lungs.

Diagnoses:

1. World Trade Center cough and syndrome (WTCS)
2. Allergic respiratory hypersensitivity triggered by WTC smoke and dust, causing local immune cell damage with subsequent hypersensitivity to smoke, dusts, molds, heavy metals, volatile compounds and other ambient allergens previously not allergenic to this individual
3. Organic Brain Syndrome with dementia secondary to immune sensitization caused by 2
4. Cerebral edema secondary to 2
5. Chronic headaches secondary to 4
6. Optic nerve supping secondary to 4
7. Glaucoma secondary to 4
8. Environmental illness with multiple acquired chemical sensitivities
9. Reactive airways dysfunction syndrome (RADS) causing bronchial

inflammation, swelling, and obstruction and resulting in asthma
10. Hypersensitivity pneumonitis
11. Chronic nasosinusitis
12. Immunotoxicity secondary to xenobiotic exposures
13. Upper respiratory allergies, primarily allergic rhinosinusitis
14. Asbestosis
15. Low back pain
16. Left lower extremity pain, numbness and paresthesias
17. Hypertension
18. Hypothyroidism

Current medications and treatments

- Provigil 75 mg. per day, an alertness medication which partially reverses the dementia-induced lethargy and memory disorder
- Diamox, a medication that removes excess or accumulated fluid, used to reduce cerebral edema
- Tiazac 240 mg. a day for hypertension
- Celluvisc eye drops as needed for chemical conjunctivitis
- Xopenex 1.25 mg with nebulizer as needed for acute bronchoconstrictive attacks.
- Albuterol inhaler for reactive airway disease
- Intal inhaler for reactive airway disease
- Advair discus as needed for reactive airway disease
- Synthroid 25 mcg daily for hypothyroidism
- Sporanox 100 mg. daily for multiple chronic systemic fungal infections
- A comprehensive nutritional supplement program designed to support and enhance healing of the immune, respiratory, and central nervous systems
- Ongoing psychiatric therapy for neuropsychiatric sequellae of WTC injuries
- Chelation Therapy, previously performed by Robert Friedman, M.D., currently per Dr. Kumar Biswas

Required Treatments with Estimated Cost

- Comprehensive workup and ongoing treatment by William Rea, M.D., director of the Environmental Health Center, Dallas, the

world's leading expert on toxic exposure and environmental medicine. Treatment program including detoxification, skin testing, intravenous therapy, antigen therapy, oxygen therapy, living at environmentally controlled units, home treatment program; 6-8 weeks of treatment. Total for initial evaluation and followup therapy three times yearly, including cost of maintaining home treatment plan between visits = 30,000/year X 25 years = $750,000

- Estimated cost of travel to Dallas including hotels three times a year $750 for 25 years = $18,750
- Bottled water $1200/year x 25 years = $30,000
- Additional cost for organic food $3000/year x 25 years = $75,000
- Home renovation for environmental illness (includes allergy free carpeting and hardwood floors, formaldehyde-free cabinetry, home air system to remove mold contamination, air filters and conditioning, one-time cost: $85,000
- Chelation therapy and intravenous nutritional medicine per Robert Friedman, M.D. and Dr. Kumar Biswas: currently owed $11,000 for past treatment and estimates $50,000 to complete all of the intravenous chelation and IV nutrient therapy injections
- Quarterly consultations by Timothy J. Smith, M.D. at $300 x 25 years = $30,000

- Drug Medications
    - Provigil 75 mg. daily; $2263/yr
    - Thyroid 25 mcg daily; $276/yr
    - Tiazac 240 mg. daily; $564/yr
    - Sporanox 200 mg. daily; $3179/yr
    - Diamox 1 500 TR q12h; $1764/yr
    - Xopenex $3096/yr
    - Albuterol Inhaler $504/yr
    - Intal Inhaler $948/yr =
    - Celluvisc Eye Drops $1200/yr =
        - Total cost per year = $14,994
        - Total cost for 25 years = $374,850
- Non-prescription medications for detoxification, immune support, environmental illness: $11,000 per year x 25 years = $275,000
- Medical and immunological testing to determine medical status,

effectiveness of therapy and degree of immune dysfunction: $2000 annually for immunological testing X 25 years = $50,000

- SPECT Scan 3000 x 3 = $9000
- Quarterly medical office visits at $300 per visit to internist: $1200 X 25 years = $30,000
- Quarterly medical office visits at $300 per visit to pulmonologist: $1200 X 25 years = $30,000
- Quarterly medical office visits to immunologist: $1200 X 25 years = $30,000
- Neuropsychiatric therapy: $300 per visit x average of 12 visits per year = $3600/year X 25 years = $90,000
- Ophthalmology for Glaucoma, optic nerve cupping, cerebral edema - Quarterly medical office visits: $1600 X 25 years = $40,000

Grand Total for all Medical costs: $1,967,600

Summary, Prognosis, and Conclusion

In the week of September 12 to September 18, 2001, Mr. Copp experienced an overwhelming exposure to chemicals and fungi at the site of the World Trade Center terrorist attacks. Previously healthy, Mr. Copp has now been rendered totally disabled. Because of the nature of the damage to his immune, respiratory, and central nervous systems, there is little likelihood that his condition will improve to the point where he would be able to resume work. He is permanently disabled.

This gentleman deserves optimum medical care for the injuries he sustained by placing his own life at risk while selflessly attempting to save the lives of others.

Sincerely,

Timothy J. Smith, M.D.

Timothy J. Smith, M.D.

James Braden

From: James Braden
Sent: Thursday, September 19, 2002 7:19 PM
To: 'TSmith7720@aol.com'
Cc: 'Pamela J. Sieux'
Subject: FW: List of 41 Medical problems and side effects Doug Copp

Tim:

Here is an interesting, and indeed comprehensive, list by Doug Copp of all his symptoms and problems that, as he says, are newly-developed since his disastrous time spent under Ground Zero after 9/11/01 at the World Trade Center.

Thanks again for being willing to see Doug.

By the way, as you say you don't often check your email, I also am faxing this to you.

Jim B.

-----Original Message-----
From: AmerRescue@aol.com [mailto:AmerRescue@aol.com]
Sent: Friday, September 13, 2002 3:38 PM
To: kipurcel@rodey.com; AmerRescue@aol.com
Cc: harrywhiting@earthlink.net
Subject: List of 41 Medical problems and side effects Doug Copp

I thought I would make a list. Please note that in July of 2001, 2 months before, my injuries I had a medical report from my Doctor Which stated: "Excellent Health!" . I had absolutely nothing wrong with me.

Now:

1) Restricted airflow Disease
2) Spine Fragmented
3) High Blood Pressure
4) low thyroid production
5) blurred vision
6) headaches
7) heartburn
8) chest constriction
9) sinus blockage
10) eyes dry
11) eye pressure
12) crotch numb
13) reduced//none sexual ability

COPP

[pulm specialist w/ [illegible]]

Celexa - cont?
Levothyroid cont
Advair discuss - ?

[Nat Beta Carotene - included in all
in directions
[illegible] [illegible] - not inhaler]

AzmaCort 2 puff bid
[illegible] 2 " qid
Advair bid
[redacted]
505-281-7977

14) water retention and bloating
15) stomach extended
16) lower back pain
17) vertigo , dizziness
18) disorientation
19) swelling of legs
20) lack of concentration
21) butt numb
22) back of left leg numb
23) excessive pain in left kneecap
24) excessive pain in chest constant
25) left foot numb
26) ripping pain up spine
27) inability to walk farther than 40 to 50 ft, at a time.
28) difficulty speaking with out prolonged breaks for breath
29) weight increase
30) frequent urination
32) difficulty sleeping
33) constant sense of chest spasm
34) hyperventilating
35) extreme reactions to heat and stillness of air
36) extreme reactions to cigarette smoke, air pollution
37) frequent chest , upper left arm pain which feels like a heart attack but isn't
38) earaches
39) reduced hearing
40) irritability
41) feel lousy..just plain sick

I don't like the mental side effects of the Singulair Drug..but the high level of Prednisone makes me feel like I am never going to stop inflating till I hit 300 lbs or more.

Doug Copp
Rescue Chief // Disaster Manager
American Rescue Team International
PO Box 534
Sandia Park, NM, 87047
Phone: 1-505-281-7977
fax: 1-505-281-7877
amerrescue@aol.com
http://www.amerrescue.org
"The world's most experienced rescue, disaster mitigation
and disaster management organization with members in 55 countries."
Doug Copp: Dipl Praktikant ENG (Germany), BA HON PHIL (Canada), Distinction Honorifica
(Universidad Nacional-Peru), Fire Capt. Station #4, CBP, Lima, (Peru), AKUT (Turkey), RCFR
(Russia), KERO (Kenya), CIBS (Portugal), RAC (Taiwan), MRC (Mexico), HTN (Bulgaria). QSDRT
(BRASIL), Bjelover Fire Dept.(Croatia), UCP(Italy)

Immunosciences Lab., Inc.
Rahim Karjoo, M.D. Medical Director

REFERRING PHYSICIAN

TRICORE REFERENCE LABORATORIES
ATTN: SENDOUT DEPARTMENT
2811 STANFORD N.E.
ALBUQUERQUE, NM. 87107

Name: COOP, DOUGLAS
Patient I.D.: X046461692

Blood Drawn	Processed	Reported	ISL No.
10/23/02	10/25/02	11/11/02	135065

TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
*** FUNGAL PANEL 2 ***				
IgG ALTERNARIA TENUIS + A		5193 very elevated	0-1600	ELISA
IgE ALTERNARIA TENUIS + A	45		0-50	ELISA
IgG ASPER FUMIGATUS		2272	0-1600	ELISA
IgE ASPER FUMIGATUS	38		0-50	ELISA
IgG ASPER NIGER	522		0-1600	ELISA
IgE ASPER NIGER	41		0-50	ELISA
IgG CANDIDA		4717	800-3200	ELISA
IgE CANDIDA		76	0-50	
IgG CLADOSPORIUM HERBARUM	420		0-1600	ELISA
IgE CLADOSPORIUM HERBARUM		57	0-50	ELISA
IgG EPICOCCUM NIGRUM		6515	0-1600	ELISA
IgE EPICOCCUM NIGRUM	43		0-50	ELISA
IgG GEOTRICHUM CANDIDUM		2174	0-1600	ELISA
IgE GEOTRICHUM CANDIDUM	35		0-50	ELISA
IgG PENICILLIUM NOTATUM	1263		0-1600	ELISA
IgE PENICILLIUM NOTATUM	48		0-50	ELISA
IgG PHOMA HERBARIUM	1554		0-1600	ELISA
IgE PHOMA HERBARIUM	46		0-50	ELISA
IgG PULLULARIA PULLULANS		3080	0-1600	
IgE PULLULARIA PULLULANS		69	0-50	
IgG RHIZOPUS NIGRICANS	736		0-1600	ELISA

QUEST DIAGNOSTICS

Immunosciences Lab., Inc.
Rahim Kanjoo, M.D. Medical Director

REFERRING PHYSICIAN

TIMOTHY SMITH, M.D.
2635 REGENT ST.
BERKELEY, CA. 94704

Patient Name: COPP, DOUGLAS
Patient I.D.:

Blood Drawn	Processed	Reported	ISL No.
11/22/02	12/03/02	12/26/02	137257

TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
*** STACHYBOTRIS BY PCR ***				
STACHYBOTRIS BY PCR	NEGATIVE		NEGATIVE	

CONTINUED ON NEXT PAGE

Immunosciences Lab., Inc.
Rahim Karjoo, M.D. Medical Director

REFERRING PHYSICIAN

TIMOTHY SMITH, M.D.
2635 REGENT ST.
BERKELEY, CA. 94704

Patient Name: COPP, DOUGLAS
Patient I.D.:

Blood Drawn	Processed	Reported	ISL No.
11/22/02	12/03/02	12/26/02	137257

TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
*** ASPERGILLUS NIGER PCR ***				
ASPERGILLUS NIGER PCR		NEGATIVE	NEGATIVE	

negative

The polymerase chain reaction (PCR) process is covered by a U.S. patent owned by Roche Diagnostic Systems.

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Patient Name: COPP, DOUGLAS
Patient I.D.: X046461692

Blood Drawn	Processed	Reported	ISL No.
10/23/02	10/25/02	11/11/02	135065

TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
IgG RHODOTORULA GLUTINIS		1688	0-1600	ELISA
IgE RHODOTORULA GLUTINIS	41		0-50	ELISA

IgE titers greater than100 are indicative of atopic allergy to that fungus

IgG titers greater than 1600 are suggestive of chronic exposure to that fungus or of prior desensitization. Assay should be repeated three months later to confirm successful desensitization or avoidance of the fungus.

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TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
*** URINE D-GLUCARIC ACID ***				
URINE D-GLUCARIC ACID	1.6		1-5	mol/ mol crea

The microsomal enzyme system of the liver can be activated by various drugs and chemicals. Thus, the biotransformation of endogenous and exogenous substances in the human organism and the biological availability of chemicals are decisively influenced. This process occurs since the human body cleanses itself by enzymatic detoxification from foreign chemicals (xenobiotics). Determination of glucaric acid excretion in urine has proved to be a suitable index to microsomal enzyme activity and presence of many xenobiotics. However, for confirmation measurements of urine D-glucaric acid in combination with serum gamma glutamyl transferase or gamma glutamyl transpeptidase is recommended.

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*** LYMPHOCYTE SUB-POPULATION ***				
TOTAL WBC	6600		4800-10800	mm3
TOTAL LYMPHOCYTE	1650.0		960-4320	mm3
% LYMPHOCYTE	25.0		20 - 40%	mm3
TOTAL T-CELL	1359.0		586-3672	mm3
% T CELL (T11, CD2)	82.0		61 - 85%	mm3
TOTAL T HELPER CELL (T4)	974.0		336-2376	mm3
% T HELPER CELL (T4)		59.0	35-55%	mm3
TOTAL SUPPRESSOR CELL	363.0		192-1599	mm3
% SUPPRESSOR CELL (T8)	22.0		20-37%	mm3
T-HELPER/T-SUPPRESSOR		2.7	1-2.5	mm3
TOTAL B CELL	149.0		48-648	mm3
% B-CELL (B1,CD20)	9.0		5 - 15%	mm3
TOTAL NATURAL KILLER	116.0		52-864	mm3
%NATURAL KILLER CELLS	7.0		5.5-29%	mm3
TOTAL IMMUNOCOMPETENT	17.0		14-216	mm3
% IMMUNOCOMPETENT -NKHT3+		1.0	1.5-5%	mm3
TOTAL NKHT3 NEGATIVE	99.0		38-648	mm3
% NKHT3 NEGATIVE	6.0		4-15%	mm3
TOTAL CD3+ CD26+	668.0		10-1944	mm3
% CD3+ CD26+ (TA1)	40.0		1-45%	mm3
TOTAL T3 (CD3) POSITIVE C	1337.0		509-3413	mm3

Suppressed Immune System

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The number and functional capacity of circulating peripheral blood leukocytes reflects the overall state of immune competence of an individual. In variety of clinical situations, test for franulocyte, lymphocyte, and monocyte number and function have become routine in the diagnosis of disease and in monitoring immunosuppressive and immunorestorative treatments. Flow cytometric measurements allow the enumeration of different types of lymphocytes by identification of their light-scattering properties and surface antigen-binding to fluorochrome-conjugated monoclonal antibodies. The clinical significance of each lymphocyte markers namely: CD3, CD19, CD4, CD8, CD 15+56 and CD26(TA1) are as follows; Decreased numbers of CD3+(T-cells) lymphocytes are found in patients with autoimmune disorders including multiple sclerosis, systemic lupus erythematosus, and eczema and also thymic aplasia(DiGeorge syndrome). Increased number of CD3+ lymphocytes are noted in patients with acute infectious mononucleosis and some forms of acquired agammaglobulinemia due to the presence of activated suppressor cells. The CD19+(B-cells) monoclonal antibody, however, are reactive with all non-T-cell ALL(Acute Lymphoblastic Leukemia) and CML(Chronic Myelogenous Leukemia) blast crisis cells suggesting a B-cell origin of these tumor cells. CD19 monoclonal antibody may also be useful in defining early B-cells and in the study of immunodeficiency diseases. On the other hand, abnormal levels of CD4+(T-helper) and CD8+ (T-suppressor) lymphocytes may aid in the diagnosis and/or prognosis of immunodeficiency diseases such as agammaglobulinemia, thymic aplasia, severe combined immunodeficiency, and AIDS. CD8+ cells are elevated in early HIV infection, and may begin to decline with time. At the time of an AIDS diagnosis, CD8+ cells have returned to normal levels. In addition, increased levels of CD8+ T-lymphocytes are associated with viral infections such as Hep-B, EBV, and CMV. CD4/CD8(H/S) ratios have been used to monitor HIV disease progression.
Low numbers of CD16+56 cells are found in patients with CFIDS. When used with CD3 monoclonal antibody, NK can be used to define distinct subsets on non-MHC restricted cytolytic cells used in the identification and enumeration of lymphoproliferative diseases involving NK cells. CD26+(TA1) is an activation marker found to be elevated in 80% of patients with Chronic Fatigue Syndrome.

References:
1. Owens, Marilyn, Loken Michael. Flow Cytometry Principles for

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TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
*** GAMMA GLUTAMYL TRANSFERAS ***				
GAMMA GLUTAMYL TRANSFERAS		65.2	0-43	UNITS/ML

hepatotoxicity 2° to toxic chemical overload

RESULT VERIFIED BY REPEAT ANALYSIS - WTC exposure

Elevated GGTP levels have been observed in the following conditions:

Cholelithiasis
Chronic alcoholism
Epilepsy
Hepatic neoplasms
Hepatitis (viral, drug, chronic)
Highly vascularized brain lesions
Liver cirrhosis
Liver metastasis
Myocardial infraction
Obstructive jaundice
Pleurisy

Administration of certain drugs or ingestion of ethanol has been shown to influence serum GGTP levels. For example, increased serum GGTP activity has been observed in patients taking anti-epileptic drugs, such as phenytoin or barbiturates.

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TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
*** MYELIN BASIC PROTEIN Ab ***				
IgG MYELIN BASIC PROTEIN		62	0 - 100	ELISA
IgM MYELIN BASIC PROTEIN		45	0 - 50	ELISA
IgA MYELIN BASIC PROTEIN		20	0 - 20	ELISA
SIALOGANGLIOSIDE GM1 Ab		18.00	0 - 20	ELISA
ANTI SULPHATIDE Ab		16.00	0 - 20	ELISA

Myelin is a multilamellar membrane surrounding nerve fibers in both the central and peripheral nervous systems. It is derived from the plasma membrane of the oligodendrocyte in the central nervous system and the schwann cell in the peripheral nervous system. Myelin consists of approximately 70% lipid and 30% protein by weight. The proteins, the proteolipids, and the basic proteins constitute 85% of the total protein of the membrane of which the myelin basic proteins (MBPs), are the most completely characterized. Antibodies (IgG, IgM, IgA) against MBP and gangliosides, including GM1, GD1a, GD1b, GT1b, and LM1, and other acidic glycolipids, including LK1 and sulphatide, of human brain and peripheral nerve, have been observed in the high percentage of patients with the following neurological conditions:
Multiple sclerosis, guillain barr'e syndrome, chronic inflamatory demyelinating polyradiculo neuropathy, motor neuron disease or peripheral neuropathies, peripheral neuropathy associated with monoclonal IgM antibody (IgM gammopathy), vascular multiinfarct dementia, alzheimer's, rheumatoid arthritis, toxic chemical exposure and silicone adjuvant disease.

The major antigen of Myelin Basic Protein in this assay consist of Myelin associated Glycoprotein or MAG.
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TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
*** AUTO IMMUNE PANEL ***				
ANTI-CENTROMERE	NEGATIVE		NEGATIVE	
ANTI-MICROSOMAL	5		<20	IU/ml
ANTI-MITOCHONDRIAL	NEGATIVE		NEGATIVE	
ANTI-MYOCARDIAL	1:20		0-20	ELISA
ANTI-NATIVE DNA	NEGATIVE		NEGATIVE	
ANTI-NUCLEAR AB BY HEP-2		1:320 SPECKLED	1:20	autoimmune activator
ANTI-PARIETAL CELL	1:23		0-40	ELISA
ANTI-RNP	N.D.		NOT DETECTED	
ANTI-SM	N.D.		NOT DETECTED	
ANTI-SMOOTH MUSCLE		1:25	0-20	ELISA
ANTI-SSA	N.D.		NOT DETECTED	
ANTI-SSB	N.D.		NOT DETECTED	
ANTI-STRIATED MUSCLE	1:10		0-20	ELISA
ANTI-THYROGLOBULIN	8		<45	IU/ml
C3-COMPLEMENT		167.0	75-140	ug/dl
C4-COMPLEMENT		36.0	10-34	ug/dl
RHEUMATOID FACTOR		25.0	0-20	IU/ml
TOTAL IMMUNE COMPLEX		52.0	0-50	ug eq/ml

N.D.= NOT DETECTED
Autoimmune diseases can be separated into two categories.One

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TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS

that are broadly reactive with nuclear or cytoplasmic antigens and that do not demonstrate any tissue specificity. Included in this group are diseases such as rheumatoid arthritis, systemic lupus eryhtematosus, mixed connective tissue disease, sleroderma, Sjogren's syndrome, and dermatomycsitis or polymyositis. A second group of autoimmune diseases is characterized by autoantibodies which demonstrate tissue specificity. These diseases include thyroiditis, chronic liver diseases (including primary biliary cirrhosis and chronic active hepatitis), certain cases of pernicious anemia, and myasthenia gravis.

The detection of circulating antibodies to nuclear antigens is an important tool in the investigation of systemic rheumatic diseases. Many techniques have been developed to detect antinuclear antibodies (ANA), but the fluorescent-ANA (FANA) or enzyme-ANA EANA) test continues to be the most widely used and accepted. When the ANA is performed by using substrate of choice such as human epidermoid cell line (HEP-2) the ANA incidence is positive in 99% of SLE; 85% of Sjogren; 88% of sleroderma; 55% of rheumatoid arthritis and 40% of juvenile chronic arthritis.

Antinuclear antibodies may be classified biochemically according to whether they bind a nucleic acid per se, a chromatin component such as histone, ribunucleoprotein (RNP), or some other nuclear constituent. Antibodies within each class can be detected readily in assays based on immunofluorescence using HEP-2 cell line, enzyme immunoassay and Western Blot Assays using biochemically purified antigens.

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TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
*** CHEMICAL ANTIBODIES ***				
IgG FORMALDEHYDE	8		16	ELISA
IgE FORMALDEHYDE	8		16	ELISA
IgM FORMALDEHYDE	8		64	ELISA
IgG ISOCYANATE	8		16	ELISA
IgE ISOCYANATE	8		16	ELISA
IgM ISOCYANATE	8		64	ELISA
IgG TRIMELLITIC ANHYDRIDE	8		16	ELISA
IgE TRIMELLITIC ANHYDRIDE	8		16	ELISA
IgM TRIMELLITIC ANHYDRIDE	8		64	ELISA
IgG PHTHALIC ANHYDRIDE	8		16	ELISA
IgE PHTHALIC ANHYDRIDE	8		16	ELISA
IgM PHTHALIC ANHYDRIDE	8		64	ELISA
IgG BENZENE RING	8		16	ELISA
IgE BENZENE RING	8		16	ELISA
IgM BENZENE RING	8		64	ELISA

Formaldehyde, isocyanate, trimellitic anhydride, phthalic anhydride, benzene, hexane, styrene, and toluene are the major cause of industrial and indoor air pollution. These chemicals are found in thousands of modern products for home and industry and, therefore, millions of people are constantly exposed to low-levels of these chemicals at work and at home. The common health problems related to chemical exposure include headache, depression, fatigue, irritability allergy-like symptoms, immune dysfunctions, infections, heart disease and possibly cancer. The immunological damages are caused by chemical linking to human proteins, cells, or

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TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
*** IMMUNE COMPLEX ASSAY ***				
IgG IMMUNE COMPLEX		23	0-20	ug eq/ml
IgM IMMUNE COMPLEX		16	0-15	ug eq/ml
IgA IMMUNE COMPLEX		13	0-10	ug eq/ml

Interactions between antigens and antibodies can form molecular aggregates in the body known as immune complexes. They can deposit in blood vessels, tissue and various glands throughout the body, producing inflammation and pathological conditions. They may initially form in the circulation prior to deposition or directly in tissue. Elevated levels have been detected in many diseases including autoimmune conditions such as SLE, rheumatoid arthritis and glumerulonephritis, as well as malignancies and various infectious diseases. They have also appeared in migraine headaches, psoriasis, and other unexpected diseases.
Their presence during a disease state does not necessarily implictae them as causative factors in the disease process. Other clinical data and the condition of the patient should be taken into consideration when interpreting results.
Immune complex levels up to two times the upper range of normal may be significant but should not be considered diagnostic or prognostic unless supported by a strong clinical picture.

Reference:
Carol Ann Toth, Douglas Pohl, and Vincent Agnello. "Methods for Detection of Immune Complexes by Utilizing C1q or Rheumatoid Factors" in Manual of Clinical Laboratory Immunology, 3rd edition, ed. Noel R. Rose, Herman Friedman and John L. Fahey (Washington, D.C., 1986), pp. 204-207.
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TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
*** SECRETORY IgA ***				
SECRETORY IgA	11.0		13-28	Ug/ml

Secretory IgA is the first line of defense and response to foreign antigens including bacteria, viruses, parasites, and food proteins. Secretory IgA is found only in surface mucosal secretions, and its absence is the most common immunodeficiency disorder accounting for 15% of all such cases. Frequency of certain diseases, mainly neurological (24%), gastrointestinal (28%), collagen, autoimmune (20%), and recurrent infections (23%), may occur in patients with selective IgA deficiency. These include neuropathies, endocrinopathies, atopy, Celiac Disease, asthma, food allergies, Rheumatoid Arthritis, Lupus, Malabsorption Syndrome, lymphomas, bacterial, viral and fungul infections.

High levels of Secretory IgA is associated with chronic viral syndromes, parotitis, gingivitis, and may be indicative of mucosal surfaces infection with EBV, CMV, Herpes, HIV, Streptococcus, Bacteroides and Candida albicans.
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TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
*** T AND B CELL FUNCTION ***				
PHYTOHEMAGGLUTININ	112.0		75-125%	
CONCANAVALIN A	92.0		75-125%	
POKEWEED MITOGEN	83.0		75-125%	
LIPOPOLYSACCHARIDE	92.0		75-125%	
S. AUREUS ANTIGENS	85.0		75-125%	

Lymphocyte proliferation or transformation is the process whereby new DNA synthesis and cell division take place in lymphocyte after a stimulus of some type (chemical, bacteria, virus, or other antigens), resulting in a series of changes. This test has a broad range of applications, including assessment and monitoring of congenital immunological defects which range from complete lack of function, as in severe combined immunodeficiency disease and DiGeorge Syndrome, to a partial deficit, as in ataxia telangiectasia, Wiskott-Aldrich Syndrome, chemically induced immune dysfunction syndrome, chronic fatigue syndrome, and chronic mucocutaneous candidiasis, to normal reactivity, as in X-linked hypogammaglobulinemia. A wide variety of acquired conditions has been shown to have induced lymphocyte transformation. These conditions include exposure to a variety of chemicals, bacterial and viral infections, as well as autoimmune diseases, such as Sjogren's Syndrome and systemic lupus erythematosus. Lymphocyte transformation has also been used to monitor sequential samples from patients undergoing a variety of immunoenhancing or immunosuppressive therapies in the treatment of disease states.

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TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
*** NK CELL ACTIVITY PANEL ***				
NK CELL ACTIVITY		10.90	20-50	LUs
NK CELL ACTIVITY/CELL	9.40		5.1-10	mm3
%NATURAL KILLER CELLS	7.0		5.5-20%	mm3
% IMMUNOCOMPETENT -NKHT3+		1.0	1.5-5%	mm3
% NKHT3 NEGATIVE	6.0		4-15%	mm3
% T3 POSITIVE CELLS		81.0	53-79%	mm3

One of the major mechanisms by which the immune response deals with foreign or abnormal cells is to damage or destroy them. Such immunologic cytotoxicity may lead to complete loss of viability of the target cells (cytolysis) or an inhibition of the ability of the cells to continue growing (cytostasis). Immunologic cytotoxicity can be manifested against a wide variety of target cells. These include malignant cells, normal cells from individuals unrelated to the responding host, and normal cells of the host that are infected with viruses or other microorganisms. In addition, the immune system can cause direct cytotoxic effects on some microorganisms, including bacteria, parasites, and fungi. Immunologic cytotoxicity is a principal mechanism by which the immune response copes with and often eliminates foreign materials or abnormal cells. Natural killer cell activity is influenced by a variety of conditions including stress, chemical exposure, infections, chronic fatigue syndrome, immune deficiencies and cancer. In an increasing number of studies of clinical treatments of patients with various diseases, serial monitoring of cytotoxic reactivity is performed. The objective is to determine whether the treatment can produce a significant alteration from the pretreatment levels of NK activity, Antibody Dependent Cytotoxic activity, or both. Interleukin 2, interferon and natural killer cytotoxic factor has been shown to enhance NK cell activity. Therefore enhancement of Interleukin 2 Production may be useful in reactivation of NK cells in patients with the above mentioned conditions.

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C4-COMPLEMENT		36.0	10-34	ug/dl
RHEUMATOID FACTOR		25.0	0-20	IU/ml
TOTAL IMMUNE COMPLEX		52.0	0-50	ug eq/ml
IgG IMMUNE COMPLEX		23	0-20	ug eq/ml
IgM IMMUNE COMPLEX		16	0-15	ug eq/ml
IgA IMMUNE COMPLEX		13	0-10	ug eq/ml
NK CELL ACTIVITY		10.90	20-50	LUs
% IMMUNOCOMPETENT -NKHT3+		1.0	1.5-5%	mm3
% T3 POSITIVE CELLS		81.0	53-79%	mm3

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***** SUMMARY RESULTS *****				
THE FOLLOWING ABNORMALITIES WERE DETECTED:				
IgG ALTERNARIA TENUIS + A		5193	0-1600	ELISA
IgG ASPER FUMIGATUS		2272	0-1600	ELISA
IgG CANDIDA		4717	800-3200	ELISA
IgE CANDIDA		76	0-50	
IgE CLADOSPORIUM HERBARUM		57	0-50	ELISA
IgG EPICOCCUM NIGRUM		6515	0-1600	ELISA
IgG GEOTRICHUM CANDIDUM		2174	0-1600	ELISA
IgG PULLULARIA PULLULANS		3080	0-1600	
IgE PULLULARIA PULLULANS		69	0-50	
IgG RHODOTORULA GLUTINIS		1688	0-1600	ELISA
% T HELPER CELL (T4)		59.0	35-55%	mm3
T-HELPER/T-SUPPRESSOR		2.7	1-2.5	mm3
% IMMUNOCOMPETENT -NKHT3+		1.0	1.5-5%	mm3
% T3 POSITIVE CELLS		91.0	55-79%	mm3
GAMMA GLUTAMYL TRANSFERAS		65.2	0-43	UNITS/ML
RESULT VERIFIED BY REPEAT ANALYSIS				
ANTI-NUCLEAR AB BY HEP-2		1:320	1:20	
SPECKLED				
ANTI-SMOOTH MUSCLE		1:25	0-20	ELISA

Elemental Analysis Hair

Great Smokies Diagnostic Laboratory℠

63 Zillicoa Street - Asheville, NC 28801-1074
www.gsdl.com

Patient: DOUGLAS COPP
Age: 51
Sex: M
MRN: 0000428962

Order Number: 34160533
Completed: October 21, 2002
Received: October 16, 2002
Collected: October 08, 2002

TIMOTHY SMITH MD
5231 Thomas Road
Sebastopol, CA 95472

Toxic Elements

Analyte	Reference	Reference Range
Aluminum	2.3	<=9.0
Antimony	0.035	<=0.030
Arsenic	<0.025	<=0.100
Barium	3.87	<=1.45
Bismuth	<0.0250	<=0.2000
Cadmium	0.309	<=0.150
Lead	2.03	<=1.40
Mercury	1.06	<=1.00
Nickel	0.821	<=0.400
Thallium	<0.0003	<=0.0012
Tin	0.102	<=0.250
Uranium	0.032	<=0.060

Reference range expressed in ppm

Nutrient Elements

Analyte	Reference	Reference Range
Calcium	2,317	220-780
Magnesium	265	16-90
Copper	30.6	10.5-28.0
Zinc	193	120-170
Manganese	1.54	0.12-0.45
Chromium	0.33	0.34-0.90
Cobalt	0.1260	0.0075-0.0400
Molybdenum	0.057	0.025-0.096
Boron	1.10	0.15-3.00
Iodine	0.38	0.16-1.75
Lithium	0.0386	0.0027-0.0320
Selenium	0.83	0.48-1.45
Strontium	8.79	0.35-3.25
Sulfur	52,207	44,200-53,000
Vanadium	0.10*	0.014-0.150

Reference range expressed in ppm

Additional Elements

Analyte	Reference	Reference Range
Sodium	142	5-60
Potassium	2.4	1.5-30.0
Rubidium	0.012	0.004-0.045
Iron	17.4	6.0-18.0
Phosphorous	159	125-240
Titanium	0.56	0.25-1.25

Reference range expressed in ppm

Within EPR* Outside EPR* Outside Ref Range

	Inside Range	Outside Range	Reference
Ca/Mg	8.7		5.0-15.0
Ca/P		14.6	2.5-10.0
Na/K		59.2	1.5-10.0

20% 40% 60% 80% 100%
The % of shading represents the degree of confidence in an endogenous origin of the element.

* The Functional Physiological Range (FPR) depicts a medical decision interval. Values outside of the FPR are not necessarily abnormal. Rather, the FPR has been established by GSDL's Department of Medical Science based upon current medical literature, collective clinical experience and consensus medical opinion.

Commentary

Commentary is provided to the practitioner for educational purposes, and should not be interpreted as diagnostic or treatment recommendations. Diagnosis and treatment decisions are the responsibility of the practitioner.

Antimony (Sb) is at an elevated level in the hair. Hair Sb reflects past or chronic skin exposure, inhalation or ingestion of this element. Sb is a nonessential element considered to be more toxic than arsenic. Antimony's deposition in body tissues and its detrimental effects depend upon the oxidation state of the element. Sb+3 affects liver functions, impairs enzymes, and may interfere with sulfur chemistry. If Sb impairs phosphofructokinase (PFK), then purine metabolism may be disrupted, resulting in elevated blood and/or urine levels of hypoxanthine, uric acid and possibly ammonia. Sb+5 deposits in bone, kidney, and in organs of the endocrine system. "Antimony spots" may result from skin contact with Sb salts and vapors. Symptoms can be variable, including fatigue, myopathy, hypotension, angina and immune dysregulation.

Barium (Ba) is at elevated level in the hair. Hair Ba may be used for monitoring the accumulated body burden. Insoluble Ba compounds are not absorbed from the GI tract, and Ba salts such as Ba sulfate are commonly administered for diagnostic purposes such as x-ray procedures. Soluble Ba salts (chloride, carbonate, nitrate, sulfide) are absorbed when ingested and can have detrimental affects. Biochemically, Ba displaces or antagonizes potassium-dependent functions and stimulates adrenal medullary secretion of catecholamines. Early or mild symptoms of Ba excess include nausea, diarrhea, muscle stimulation, and tingling in the extremities. Later or more severe manifestations are cardiac fibrillation, loss of tendon reflexes, convulsive tremors or muscular paralysis, and respiratory distress.

Cadmium (Cd) is at an elevated level in the hair. Hair Cd correlates with body burden and with past or chronic ingestion of this element. Cadmium can exert toxic effects by inhibiting sulfur -bearing enzymes and by displacing enzyme bound zinc or copper. In cells, Cd can inhibit gluconeogenesis and phosphorylation processes. Cadmium's deleterious effects may be delayed and insidious with a latent period of years before manifestations are apparent. Excessive body burden of Cd is associated with hypertension and impaired renal transport with proteinuria and urinary wasting of beta 2-microglobulin. Cd can also adversely affect heart, bone and testes. Inhalation of Cd salts or vapors may produce emphysema. Smoking and high sugar diets appear to increase Cd levels. In children, elevated Cd has been correlated with lowered IQ.

Hair is sensitive to contamination with Cd from hair preparations, especially hair sprays. The probability of such contamination is reflected by the shading of the circle for Cd on the lab report.

Lead (Pb) is at an elevated level in the hair. Hair Pb level correlates with body tissue deposition levels (bone, aorta, liver, kidney) and also correlates with blood levels if the exposure is periodic or chronic.

At the cellular level, lead interferes with membrane transport processes and with enzyme functions because it is able to bond to many chemically active sites. The interaction of lead with sulfhydryl (SH) sites causes most of the toxic effects which include impaired heme synthesis, inhibition of erythrocyte Na, K ATPase, diminished RBC glutathione, shortened RBC life span, impaired synthesis of RNA, DNA and protein and impaired metabolism of vitamin D. Lead may also be nephrotoxic, resulting in disordered renal transport with uricemia (possibly gout), hyperaminoaciduria, glycosuria and phosphaturia. Excess body burden of Pb can be consistent with fatigue, headaches, loss of appetite, insomnia, nervousness, anemia, weight loss, decreased nerve conduction and possibly motor neuron disorders.

Hair is sensitive to external contamination with Pb. Elevated hair Pb may be an artifact of certain hair preparations, especially dyes and darkening agents, e.g. "Grecian Formula". The probability of such contamination is

Commentary

reflected by the shading of the circle for Pb on the lab report.

Mercury (Hg) is at an elevated level in the hair. Hair Hg correlates with: Hg deposition in body tissues (kidneys, epithelium, pancreas, testicles, prostate, thyroid, liver), the number and size of dental amalgams, regular ingestion of fish, and blood Hg level when the Hg exposure is periodic or chronic. Both methylated and nonmethylated mercury are readily transported via mother's milk. Transplacental Hg contamination can occur, and hair of neonates and mothers correlate closely.

Manifestations of mercury excess can depend upon the chemical form and mode of exposure, metabolic status and levels of protective nutrients (vitamin E, selenium), the presence of synergistic toxins (cadmium, lead), and immune function. Hg binds to sulfur-bearing proteins and enzymes and has strong affinity for sulfhydryl groups (SH) such as glutathione, cysteine, and enzymes such as monoamine oxidase.

Mild mercury toxicity may result in reduced sensory abilities (taste, touch, vision and hearing), metallic taste with increased salivation, fatigue and anorexia. Chronic exposures may adversely affect lymphocyte activity, result in autoimmune complexes and increased risk for cardiovascular disease. Moderate and severe mercury excess can result in paresthesias, hypertension with renal dysfunction, irritability and excitability, psychoses, mania, anemia, tremors and incoordination.

Nickel (Ni) is at an elevated level in the hair. Hair Ni level correlates with chronic exposures and ingestion. In blood, Ni binds to albumin, globulins and amino acids, and is deposited in leukocytes. In cells, it binds to mitochondrial and cytosolic proteins. In so doing, it can displace zinc and copper, thereby activating, inhibiting, or dysregulating enzymes. A nickel exposure may hypersensitize the immune system, resulting in inflammatory responses to many environmental substances to which there was formerly little or no response. Possible symptoms of nickel excess include panallergy with rhinitis, sinusitis, conjunctivitis and asthma. Other symptoms may include vertigo, weakness and fatigue, nausea and headache. Nickel contact allergy ("nickel itch") or contact dermatitis is not necessarily reflected by elevated hair Ni.

Hair is sensitive to external contamination with Ni. Some shampoos and many hair perm dye bleach products place Ni into the hair. The probability of such contamination is reflected by the shading of the circle for Ni on the lab report.

Calcium (Ca) is at an elevated level in the hair. Hair Ca level correlates with long term dietary intake, absorption from the GI tract, and retention. However, hair Ca level does not necessarily reflect current serum calcium or calcium ion concentrations and may not have a linear or direct relationship with tissue deposition or bone density.

Elevated hair Ca is consistent with chronic hypercalcemia conditions, hyperparathyroidism, chronic hypervitaminosis D, vitamin D deficiency with osteoporosis, renal failure, hyperglycemia and diabetes, hepatitis and cirrhosis. Neoplastic disease may feature elevated hair Ca. In osteoporosis, hair Ca is elevated to some degree while the Ca/Mg ratio is notably elevated. Symptoms consistent with elevated hair Ca vary with conditions. Hypercalcemia may feature lethargy and muscle weakness, hypotonicity and constipation.

Elevated hair Ca may be an artifact of external contamination from hair preparations. The probability of such contamination is reflected by the shading of the circle for Ca on the lab report.

Magnesium (Mg)is at an elevated level in the hair. Hair Mg reflects longterm dietary intake, absorption from the GI tract and retention. However, hair Mg does not necessarily reflect current plasma or cellular levels. Elevated hair Mg usually indicates maldistribution of the element without direct correlation to blood levels. Abnormal levels or imbalances of calcium or phosphorus may result in elevated hair Mg. Elevated hair Mg may be associated with renal failure, with overall Mg excess, hypoglycemia, chronic physical or emotional stress, and hypoparathyroidism.

Copper (Cu) is at an elevated level in the hair. Hair Cu correlates with tissue levels except in copper loading diseases.

Commentary

Elevated hair Cu may coincide with: zinc or molybdenum deficiency, biliary insufficiency or obstruction, cirrhosis or chronic hepatitis and copper toxicity. Copper toxicity may feature tremor, dementia, Parkinsonism, hemolytic anemia, jaundice and renal damage. Occasionally, emotional instability, aggressive or violent behaviors, are seen in individuals with elevated hair Cu. Suggested for further assessment of copper status are the following measurements: copper amino acid carriers in plasma (histidine, threonine, glutamine), serum ceruloplasmin, erythrocyte Cu content and urinary Cu.

Elevated hair copper may be an artifact of exposure to swimming pool water where Cu algicides are used, and of hair treatments or shampoos. Acidic wash water carried through copper pipes can also affect the hair Cu level. The probability of such contamination is reflected by the shading of the circle for Cu on the lab report.

Zinc (Zn) is at an elevated level in the hair. Elevated hair Zn almost always reflects maldistribution of zinc or dysfunction in the liver and other organs and tissues. Some studies suggest that elevated hair Zn corresponds to longstanding Zn deficiency and dysfunction in an individual. Rarely, elevated hair Zn results from gloeal Zn excess or Zn toxicity. Blood, cell and urine analyses should be considered for diagnosis of zinc status.

With few exceptions, elevated hair Zn is consistent with prolonged deficiency of dietary zinc, poor digestive proteolysis, malabsorption syndromes or chronic diarrhea. Many possible physiological conditions or diseases may be coincident with zinc dysfunction. These include: impaired taste or smell, poor night vision, fatigue, dermatoses, gastrointestinal distress, eating disorders, obesity, sexual dysfunction, growth retardation in children and (partial) alopecia. Elevated cholesterol has been reported to correlate with elevated hair Zn. Some malignancy conditions may also raise hair Zn level.

Manganese (Mn) is at an elevated level in the hair. Hair Mn level correlates with ingestion, other exposures, and with clinical conditions related to Mn excess.

Elevated hair Mn may be the result of excessive Mn exposure or ingestion, inadequate detoxication or excretion of Mn chemicals, or exposure to radioactivity. Short term symptoms of excess body burden of Mn include: tiredness, headache, fatigue and depressed systolic pressure. Longer term symptoms may include insomnia, sexual impotence and dementia. Conditions reported to correspond with elevated hair Mn include asthenia, muscle rigidity, bradykinetic syndrome indistinguishable from Parkinson's disease, emotional instability, aberrant behaviors, aggressiveness and violence.

Hair is sensitive to external contamination with Mn. Elevated hair Mn may be an artifact of hair treatments such as perms, dyeing or bleaching. Some wash waters from private water wells may contaminate hair with Mn. The probability of contamination is reflected by the shading of the circle for Mn on the lab report.

Chromium (Cr) is at a depressed level in the hair. Hair Cr corresponds to nutritional and physiological status. Chromium potentiates insulin function. Subnormal Cr in hair is consistent with: abnormal glucose metabolism, hyper-hypoglycemia following dietary intake of sugar and carbohydrate, diabetes, and elevated blood lipids including LDL cholesterol. Symptoms or conditions may include chronic fatigue, lack of physical endurance and weight gain or obesity.

Cobalt (Co) is at an elevated level in the hair. Rarely, elevated Co results from endogenous Co excess following ingestion or inhalation of cobalt salts or organocobalt chemicals. Cobalt excess in body tissue (liver, muscle, spleen, kidney, adrenals, bone, skin and hair) may result from occupational or environmental exposures. Megadoses of vitamin B12 have not been observed to raise hair Co above the normal range. Co excess affects heme synthesis and screens blood protein components, characteristically causing an increase in alpha-globulin. Endogenous Co excess toxicity symptoms may include fatigue, depressed iodine uptake, hypothyroid function, goiter, anorexia, nausea, diarrhea, tinnitus and occasionally dermatoses.

Elevated hair Co may be an artifact of external contamination from hair preparation products. Occasionally, hair

Commentary

treatments, occupational or environmental exposures to cobalt dusts or chemicals may cause external contamination. The probability of contamination is reflected by the shading of the circle for Co on the lab report.

Iodine (I) level is within the reference range. Hair is indicative of past ingestion of I and of health conditions relating to deficiency or excess. The reported I level may include some external contamination by hair preparation products. The probability of such contamination is reflected by the shading of the circle for iodine on the lab report.

Lithium (Li) is at an elevated level in the hair. Hair Li correlates with tissue levels and with longterm dietary intake of Li. Additionally, Li level has been reported to correlate with lithium carbonate therapy.

Elevated hair Li is consistent with increased dietary intake, usually from ground water, and with use of lithium salts in bathing. Very elevated hair Li often corresponds to lithium therapy. Excessive Li ingestion may provoke hypotension, edema, nausea and mental confusion. Blood serum measurement is advised for monitoring therapeutic Li level.

Selenium (Se) level is within the reference range. However, hair Se levels may reflect external contamination from Se-containing shampoos, which can contribute to the measured level. The probability of such contamination is reflected by the shading of the circle for Se on the lab report.

Strontium (Sr) is at an elevated level in the hair. Sr has been reported to correlate with tissue levels. Sr usually tracks the calcium level as well. Natural Sr is a mixture of stable (not radioactive) isotopes. Sr acquired a bad reputation due to formation of radioactive Sr from fission of uranium during nuclear weapons testing. The Sr measured and reported by GSDL is natural and stable Sr 88 which is associated with calcium in animal and vegetable tissues, in soils and in the earth's crust.

Conditions which may be consistent with elevated Sr include chronic hypercalcemia, hyperparathyroidism, chronic hypervitaminosis D, osteoporosis (possibly with vitamin D deficiency), renal failure, hypoglycemia, hepatitis and liver cirrhosis.

Elevated Sr may be an artifact of external contamination from hair preparation products, which contribute to the measured level. The probability of such contamination is reflected by the shading of the circle for Sr on the lab report.

Sulfur (S) level is within the reference range. Experience* suggests hair levels of S can reflect the status of important sulfur bearing amino acids: cystaine, cystine, and taurine. However, hair S is susceptible to external influences, particularly from hair straightener products, which may significantly lower S content, or hair conditioning or permanent treatments, which raise it. The probability of such influences is reflected by the shading of the circle for S on the lab report.

The lab report lists six elements in a grouping entitled "Other." In hair, these elements do not correlate with blood or other tissue levels, but they can be markers for contamination or may have special meaning. Hair sodium levels are very subject to external contamination by shampoos and hair treatment products, which may contribute to the measured levels. Hair potassium is less subject to external contamination. Hair sodium and potassium vary with metabolic, homeostatic and stress conditions. Rubidium is a relatively benign element which typically parallels the potassium level. It varies according to levels found in water supplies. At extremely high levels, Rb may compete with potassium for activity in the cellular potassium pump: in practical terms this is rarely seen. Hair iron is not usually reflective of iron status but can be a marker for external contamination. Additionally, elevated hair iron may be found in smokers, x- ray technicians and individuals with certain forms of cancer. Notably low or high hair phosphorus is consistent with abnormal calcium and/or magnesium metabolism. Hair phosphorus also is typically elevated with kidney dialysis, and appears to be depressed in chronic hepatitis. Hair phosphorus is seldom altered by external influences. Hair is extremely susceptible to contamination with titanium from hair treatment products. Most common forms of titanium are inert, insoluble and nontoxic, especially titanium dioxide pigment. Titanium is included in this