

Our reference: 8027

February 15, 2006

U.S. Department of Justice
Washington, D.C. 20530

Re: Expert Report of Dr. Bruce Kelman in the matter of Mitchell *et al.* v. United States

I have been asked to provide an expert opinion regarding the claims of human health effects from alleged exposure to molds in the matter of Mitchell *et al.* v. United States. I have extensive general knowledge in the field of toxicology and specific knowledge of the effects of mycotoxins from mold in indoor environments. The following report outlines my relevant qualifications and opinions.

Opinions

I conclude, to a reasonable degree of scientific certainty, the following opinions:

- Mold and mold spores are ubiquitous, and the maintenance of a mold-free home environment is not possible.
- Sampling and analysis presented in the report by Mold Lab Int'l is not useful for estimating exposure because of inappropriate sampling techniques, lack of controls, and a lack of laboratory accreditation.
- There are no data showing that mycotoxins were present in the indoor air of the residence at 2063-N Evans Road.
- There are no data showing that there was a sufficient amount of mycotoxin present in the indoor air of the residence at 2063-N Evans Road to have caused any injury to occupants.
- There could not have been sufficient amounts of mycotoxin present at the

Were mycotoxins present?

Mycotoxins are fungal metabolites that may be toxic to humans and/or animals. They are sometimes produced by molds as by-products of mold's biological processes and are not required to maintain the life of the mold.

No data provided for review indicated that any mycotoxins were present at the subject property. An exhaustive review of the scientific literature indicates there is agreement that mycotoxins are only sometimes produced by molds; they are not always produced (Tuomi T, et al. (2000). Mycotoxins in crude building materials from water-damaged buildings. *Appl. Environ. Microbiol.*, 66(5):1899-1904; Burge HA. (2001). The Fungi -Chapter 45. In: *Indoor Air Quality Handbook* (Eds: Spengler JD, Samset JM, McCarthy JS). McGraw Hill, P.45-11); Rao CY. (2001). Toxigenic Fungi in the Indoor Environment (Chapter 46). In: *Indoor Air Quality Handbook* (Eds: Spengler JD, Samset JM, McCarthy JS). McGraw Hill. Pp. 46-2 and 46-4; Ren P. Ahearn DG, Crow SA. (1999). Comparative study of *Aspergillus* mycotoxin production on enriched media and construction material. *J. Ind. Microbiol.* 209-213).

Thus, exposure to molds does not mean exposure to mycotoxins.

b) Are mycotoxins in a home environment capable of causing the adverse effects claimed by the plaintiff?

The plaintiffs must establish that mycotoxins are capable of causing the health effects claimed to be caused by exposure to mycotoxins. The members of the Mitchell family identified the following injuries:

The Mitchell Family – Brenda, Dominique, Jennifer, SDM, and CAM (as identified in Email from Calvin Mitchell to Ms. Spencer on 5/21/02 (Bates #00033); Plaintiffs’ Response to Defendant United States’ First Set of Interrogatories, Requests for Production of Documents, and Requests for Admissions, page 8; Deposition of Brenda Mitchell - 99:5-99:21, 103:2-103:13; Deposition of Calvin Mitchell - 29:21-30:20; Claim for **Damage, Injury, or Death** - Defendant’s Exhibit 3):

- Aches
- Bronchitis
- Chest pains
- Colds
- Congestion
- Depressed immune system
- Dizziness
- Fatigue
- Eye irritation
- Gastroenterological inflammation and “problems”
- Headaches
- Infections
- Nausea
- Pneumonia
- Respiratory problems
- Respiratory infections
- Runny nose
- Shortness of breath
- Sinus infections
- Soreness in the leg
- Vomiting
- Weakness

The following injuries were specifically identified for each family member:

Brenda Mitchell (Plaintiffs’ Response to Defendant United States’ First Set of Interrogatories, Requests for Production of Documents, and Requests for Admissions, page 8; Deposition of Brenda Mitchell - 99:5-99:21, 101:3-102:1, 110:6-110:22, 157:25-158:15; Deposition of Calvin Mitchell - 90:24-91:21, 107:12-107:15):

- Breathing difficulty
- Chest pain
- Memory loss
- Headaches
- Dizziness
- Nausea

- Side pain
- Tiredness
- Deterioration of tissue around heart

Dominique Mitchell (Deposition of Brenda Mitchell -103:14-105:8; Deposition of Calvin Mitchell - 107:16-107:21; Deposition of Dominique Mitchell 14:2-14:15, 17:22-18:1; Claim for Damage, Injury, or Death (Defendant's Exhibit 3)):

- Breathing difficulty
- Cough
- Sinus problems
- Bronchitis
- Runny nose
- Headaches
- Nausea
- Wheezing
- Vomiting
- Dizziness
- Weakness
- Aches
- Depressed immune system

Jennifer Mitchell (Deposition of Brenda Mitchell -103:14-105:8; Deposition of Calvin Mitchell - 107:22-108:6; Deposition of Jennifer Mitchell -15:1-16:3, 31:18-32:20; Claim for Damage, Injury, or Death (Defendant's Exhibit 3)):

- Breathing difficulty
- Sinus infections
- Headaches
- Nausea
- Fatigue
- Cough
- Vomiting
- Dizziness
- Weakness
- Aches
- Depressed immune system

SDM (Deposition of Brenda Mitchell -103:14-105:8, 161:11-161:20; Deposition of Calvin Mitchell - 89:21-90:23, 108:7-108:15; Claim for Damage, Injury, or Death - Defendant's Exhibit 3-):

- Breathing difficulty
- Sinus problems
- Tiredness
- Cough
- Runny nose
- Nausea
- Vomiting
- Dizziness
- Headaches
- Weakness
- Aches
- Depressed immune system

CAM (Deposition of Brenda Mitchell - 103:14-105:8, 160:1-161:1; Deposition of Calvin Mitchell -108:18-108:21; Claim for Damage, Injury, or Death (Defendant's Exhibit 3)):

- Coughing
- Wheezing
- Congestion
- Sinus infections
- Bronchitis
- Headaches
- Nausea
- Vomiting
- Dizziness
- Weakness
- Aches
- Depressed immune system

Based on an exhaustive review of the scientific literature, these illnesses claimed by the plaintiff are not consistent with what is known about the effects of mycotoxins from exposure via inhalation in a residential environment.

Specifically, the symptoms claimed by members of the Mitchell family have not been shown to be caused by exposure to mycotoxins of any kind under any circumstances. I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed literature showing an association between inhalation of mycotoxins in a residential environment and these claimed symptoms:

- Bronchitis
- Chest Pain
- Congestion
- Eye Irritation
- Headaches
- Pneumonia

- Dizziness
- Fatigue
- Runny Nose
- Depressed immune system
- Shortness of Breath
- Sinusitis

Coughing, nausea, vomiting, weakness, or immune suppression has been shown to be caused by exposure to specific mycotoxins under specific exposure conditions such as contaminated feed in livestock or accidental ingestion of contaminated food by humans. These are not relevant exposures to the claims being made in this case. Additionally, these symptoms are non-specific, and cannot be attributed to mycotoxins in the absence of specific signs of mycotoxicosis. I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed report showing mycotoxins cause coughing, nausea, vomiting, weakness, or immune suppression in the absence of toxin-specific signs of mycotoxicosis. There are no peer-reviewed reports showing inhalation of mycotoxins in a residential environment causes coughing, nausea, vomiting, weakness, or immune suppression.

Allergy induced asthma is a possible outcome of mold exposure in allergic individuals. The presence of asthma alone, however, is not indicative of an environmental allergy, as there are numerous other factors that can cause or trigger asthma including irritants (such as tobacco smoke or strong odors) changes in weather, viral or sinus infections, exercise, medications, food, emotional anxiety, and reflux disease (AAAAI, <http://www.aaaai.org/patients/resources/fastfacts/asthma.stm>, accessed 2/15/2006).

If a individual's asthma is allergic, allergy testing must be conducted in order to determine what allergens the patient is reacting to. Typical allergy tests screen for dust mites, pet dander, molds, trees, grasses, weeds, and cockroach droppings (AAAAI, <http://www.aaaai.org/patients/publicedmat/tips/whatisallergytesting.stm>).

An allergy test is necessary to support a claim of allergy to a specific antigen. This information is not available for the Mitchell family. Although we have a records for