

## EXHIBIT 2

**The Veritox Theory** (if this looks to you like “*garbage science*” filled with scientifically irrelevant bells and whistles to support the concept that a flawed linear-dose-no-threshold mode (LNT) proves lack of causation of human illness -- that would be because that is exactly what it is!)

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Adverse Human Health Effects Associated with Molds in the Indoor Environment  
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In single-dose in vivo studies, *S. chartarum* spores have been administered intranasally to mice or intratracheally to rats. **76,77** High doses ( $30 \times 10^6$  spores/kg and higher) produced pulmonary inflammation and hemorrhage in both species. A range of doses were administered in the rat studies and multiple, sensitive indices of effect were monitored, demonstrating a graded dose response with  $3 \times 10^6$  spores/kg being a clear no-effect dose. Airborne *S. chartarum* spore concentrations that would deliver a comparable dose of spores can be estimated by assuming that all inhaled spores are retained and using standard default values for human subpopulations of particular interest – very small infants,<sup>†</sup> school-age children,<sup>††</sup> and adults.<sup>†††</sup> The no-effect dose in rats ( $3 \times 10^6$  spores/kg) corresponds to continuous 24-hour exposure to  $2.1 \times 10^6$  spores/m<sup>3</sup> for infants,  $6.6 \times 10^6$  spores/m<sup>3</sup> for a school-age child, or  $15.3 \times 10^6$  spores/m<sup>3</sup> for an adult. If the no-effect  $3 \times 10^6$  spores/kg intratracheal bolus dose in rats is regarded as a 1-minute administration ( $3 \times 10^6$  spores/kg/min), achieving the same dose rate in humans (using the same default assumptions as previously) would require airborne concentrations of  $3.0 \times 10^9$  spores/m<sup>3</sup> for an infant,  $9.5 \times 10^9$  spores/m<sup>3</sup> for a child, or  $22.0 \times 10^9$  spores/m<sup>3</sup> for an adult.

In a repeat-dose study, mice were given intranasal treatments twice weekly for three weeks with “highly toxic” *S. chartarum* spores at doses of  $4.6 \times 10^6$  or  $4.6 \times 10^4$  spores/kg (cumulative doses over three weeks of  $2.8 \times 10^7$  or  $2.8 \times 10^5$  spores/kg).<sup>79</sup> The higher dose caused severe inflammation with hemorrhage, while less severe inflammation, but no hemorrhage was seen at the lower dose of  $4.6 \times 10^4$  spores/kg.

Using the same assumptions as previously (and again ignoring dose rate implications), airborne *S. chartarum* spore concentrations that would deliver the nonhemorrhagic cumulative three-week dose of  $2.8 \times 10^5$  spores/kg can be estimated as  $9.4 \times 10^3$  spores/m<sup>3</sup> for infants,  $29.3 \times 10^3$  spores/m<sup>3</sup> for a school-age child, and  $68.0 \times 10^3$  spores/m<sup>3</sup> for adults (assuming exposure for 24 hours per day, 7 days per week, and 100% retention of spores).

The preceding calculations suggest lower bound estimates of airborne *S. chartarum* spore concentrations corresponding to essentially no-effect acute and subchronic exposures. Those concentrations are not infeasible, but they are improbable and inconsistent with reported spore concentrations. For example, in data from 9,619 indoor air samples from 1,717 buildings, when *S. chartarum* was detected in indoor air (6% of the buildings surveyed) the median airborne concentration was 12 CFU/m<sup>3</sup> (95% CI 12 to 118 CFU/m<sup>3</sup>).<sup>80</sup>

Despite its well-known ability to produce mycotoxins under appropriate growth conditions, years of intensive study have failed to establish exposure to *S. chartarum* in home, school, or office environments as a cause of adverse human health effects. Levels of exposure in the indoor environment, **dose-response data in animals, and dose-rate considerations suggest that delivery by the inhalation route of a toxic dose of mycotoxins in the indoor environment is highly unlikely at best, even for the hypothetically most vulnerable subpopulations.**

References cited in alleged support of the Veritox Theory. Dr. Carol Rao's mechanistic work, to which Bruce Kelman and Brian Hardin applied their extrapolations:

76. Rao CY, Brain JD, Burge HA. Reduction of pulmonary toxicity of *Stachybotrys chartarum* spores by methanol extraction of mycotoxins. *Appl Environ Microbiol.* 2000;66:2817-21.

(76.) *"We provide evidence that there is a dose-related association between an acute exposure to toxin-containing *S. chartarum* spores and measurable pulmonary responses. The consequences of low-level chronic exposure remain to be investigated, as does the relevance of the rodent data to human exposure."*

77. Rao CY, Burge HA, Brain JD. The time course of responses to intratracheally instilled toxic *Stachybotrys chartarum* spores in rats. *Mycopathologia.* 2000;149:27-34.

(77.) *"We have demonstrated that a single, acute pulmonary exposure to a large quantity of *Stachybotrys chartarum* spores by intratracheal instillation causes severe injury detectable by bronchoalveolar lavage. The primary effect appears to be cytotoxicity and inflammation with hemorrhage. There is a measurable effect as early as 6 h after instillation, which may be attributable to mycotoxins in the fungal spores. The time course of responses supports early release of some toxins, with the most severe effects occurring between 6 and 24 h following exposure. By 72 h, recovery has begun, although macrophage concentrations remained elevated"*