Exhibit 125

EXPERT REBUTTAL TO DR. GOODMAN'S REPORT, ENTITLED "TRICHLOROETHYLENE, PERCHLOROETHYLENE, BENZENE, VINYL CHLORIDE, AND TRANS-1,2-DICHLOROETHYLENE AND PARKINSON'S DISEASE"

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1. EXECUTIVE SUMMARY OF CONCLUSIONS

1.1 None of the 282-page report produced by Dr. Goodman changes my original scientific opinions on the role of trichlorethylene (TCE) in Parkinson's disease (PD), and, by chemical analogy, plus weight of evidence, the role of perchloroethylene (PCE) in PD.

1.2 I find the attempts to disparage the opinions of leading scientists in neurotoxicology studying neurodegenerative diseases to be rather weak.

1.3 I also find the attempts to disparage peer-reviewed scientific literature on the role of TCE and PCE and PD to be weak and unfounded.

1.4 In my expert opinion Dr. Goodman reviewed biological plausibility reports as if they were official risk assessments, which is unfounded, duplicative, and a scientifically irrelevant strategy. The recent EPA rulings on TCE and PCE are EPA's final rule as a governing authority. EPA clearly determined TCE and PCE were neurotoxic, in banning virtually all uses. With PD being a key factor in the TCE decision and neurotoxicity being a key factor in the PCE decision.

2. OVERARCHING REBUTTAL

2.1 Dr. Goodman's report is biased and not scientifically grounded.

- Dr. Goodman did not critically assess the scientific literature through weight of evidence analysis that would have involved assessment of strengths and weaknesses. Rather, Dr. Goodman only attempts to identify weaknesses. Moreover, any potential weakness she identified, she viewed as a fatal flaw, negating impact of the article. Such a strategy is clearly biased and not scientific.

- Dr. Goodman failed to consider the collective scientific literature. Dr. Goodman ineffectively attempted to disparage each individual article. Her strategy was to identify any possible weakness or missing endpoint, which in her view would eliminate each individual article from consideration. Following disparagement of each individual article, none meet her non-scientific threshold for consideration. If no individual articles remain, there is no relationship according to Dr. Goodman's strategy. Dr. Goodman fails to consider the collective scientific literature. Each scientific article has a scope of work and obviously cannot measure every possible relevant endpoint. Moreover, all scientific articles have strengths and weaknesses. The collective scientific literature on chloroethylenes and PD is complementary (see my submitted reports). However, Dr. Goodman failed to consider that potential limitations of one paper are often addressed by another paper or papers. Dr. Goodman's narrow approach failed to consider the overall weight of evidence.

2.2 Apparent overarching strategy. From Dr. Goodman's report on PD, and my brief analysis of Dr. Goodman's other reports, her strategy is consistent with prior reports and quite evident, refute all positive evidence

through attack on scientific methodology, data analyses, conclusions and opinions of world leading experts. Dr. Goodman does not seem to give scientific credence to a single positive finding showing an adverse health outcome associated with any chloroethylene exposure. The lengthy attack strategy poorly attempts to dispute an entire scientific literature base that has resulted increasing awareness of toxicity, and, rightly so, increasingly stringent regulations to protect human health (see below).

2.3 EPA rulings and biological plausibility expert reports. Dr. Goodman has failed to consider that the expert reports submitted on the role of chloroethylenes in PD are hypothesis-driven, biological plausibility studies, not risk assessments. In fact, such risk assessments have already been completed by the EPA, the most relevant governing body. EPA clearly determined TCE and PCE were neurotoxic, in banning virtually all uses, with PD being a key factor in the TCE decision, and neurotoxicity being a key factor in the PCE decision. Dr. Goodman's report should have more thoroughly considered the EPA rulings. Here, I point the need to read EPA rulings RIN 2070-AK83 and RIN 2070-AK83. EPA risk assessments and rulings are based upon much of the strong science that Dr. Goodman attempts to disparage. For the impact of these rulings, see the report I submitted entitled "*SUPPLEMENTAL REPORT TO 12/08/2024 (SUBMITTED ON 12/09/2024) GENERAL CAUSATION REPORT: TETRACHLOROETHYLENE AND PD*".

2.4 Disparagement of scientific opinions of world leading experts, relative publication records. Dr. Goodman attempts to disparage the scientific rationale and opinions of those who have generated expert reports. All reviewers of expert reports are directed to re-review the CVs of these experts, with special attention to the publication record, especially peer-reviewed primary research studies. These are the studies where actual basic, applied, and clinical studies are conducted. These studies produce the data of importance to the field of neurotoxicology. The neurotoxicology experts, specifically, are experimentalists on the front lines of neurotoxicology research and are amongst the world leaders in the field. Conversely, while Dr. Goodman has broad training and credentials in the field of toxicology, there is a total lack of contributions of experimental data by her to the field of neurotoxicology. PubMed searches show:

- PubMed for Goodman, J or JE + Parkinson = 0 attributable articles

- PubMed for Goodman, J or JE + Neurotoxicity or Neurotoxicology or neurodevelopmental* = 5 attributable articles, all either reviews or reanalysis of prior data:

**The term "neurodevelopmental" was included not because it is directly germane to the etiopathogenesis of PD, but because Dr. Goodman has some publications on the topic that could have potentially been useful in demonstrating research contributions in neuroscience or neurotoxicology. However, Dr. Goodman's publications lack experimentally derived data.*

- 1 single author paper from 2009 on the neurodevelopmental effects of decabromodiphenyl ether (BDE-209) and implications disparaging an article that led to US EPA's IRIS updated their toxicological review for 2,2',4,4',5,5',6,6'-decabromodiphenyl ether congener and published a revised oral RfD of 0.007mg/kg day[1]. The overall conclusion Dr. Goodman reached was that a peer reviewed publication, even in conjunction with other studies, is not suitable for establishing an RfD for BDE-209 or the commercial decabromodiphenyl ether product.

- 1 middle author review article from 2011 that is an analyses of prior studies on the neurodevelopmental effects of chlorpyrifos[2]. This review article reached the overarching

conclusion that: "*Based on an HBWoE analysis, we conclude that a causal association between chlorpyrifos exposure and neurodevelopmental effects in the absence of acetylcholinesterase inhibition in the brain is not plausible in humans, and the few positive associations observed in epidemiology studies are most likely attributable to alternative explanations*.". All authors are from Gradient. A PubMed search on 03/6/2025 for chlorpyrifos + neurodevelopmental produces 116 papers, 85 published since this 2011 paper, many of which are experimentally based mechanistic neurotoxicology or epidemiology.

- 1 middle author article from 2009 paper that proposed a revised reference concentration for occupational manganese[3]. The paper re-analyzed 12 papers, finding only 3 suitable for the team's analysis. All authors are from Gradient. Their conclusion was that the reference concentration should be raised from 0.05 $\mu g/m^3$ to 2 $\mu g/m^3$. Note: EPA did not adopt this recommendation.

- 1 reanalysis of manganese exposure/dose-response data from 2018 where the team "*set out to derive a Mn Occupational Exposure Level (OEL) for welders based on a review of studies that evaluated Mn exposure concentrations from welding fumes and: (1) neurological effects in welders; (2) levels of Mn in the brains of welders (via pallidal index [PI] estimated from magnetic resonance imaging [MRI]); (3) other biomarkers of Mn exposure in welders (i.e., blood and urine); and (4) Mn brain concentrations, PI, and corresponding neurological effects in non-human primates*"[4]. All authors are From Gradient. The conclusion the team reached was: "*our analysis suggests uncertainty in quantifying dose-response associations for Mn from many of the occupational welding studies*.".

- 1 first author paper from 2012 disparaging epidemiological studies and the notion that neurodevelopmental effects from chlorpyrifos that may occur below 10% acetylcholinesterase inhibition[5]. All authors are from Gradient. I would not have agreed with the conclusion of this paper in 2011, and, moreover, I note that since this publication, papers have been published further strengthening epidemiological findings and suggesting non-cholinergic mechanisms are a critical aspect of neurotoxicity (exemplars[6,7]).

In summary, none of the above five articles – the only articles on which Dr. Goodman is listed as an author – include an author not employed by Gradient at the time of publication.

Conclusions of review of Dr. Goodman's relevant publications.

- Unlike the world leading experts who produced reports on TCE/PCE in PD, there is no evidence that Dr. Goodman has conducted/led experimental studies that have resulted in original, peer-reviewed contributions to the primary literature on the neurobiology or neurotoxicology of neurodegenerative diseases. In contrast, Dr. Goodman's relevant publications on related topics are reanalysis of other's data. This explains the poor attempt at disparaging a large body of literature on chloroethylenes and PD.

- Dr. Goodman's publications seem to have a similar strategy to her expert report: utilize quantitative risk assessment approaches to attack positive findings, either epidemiological or toxicological. Thankfully, the US EPA did not follow such a strategy in making recent rulings to protect the health of Americans.

2.5 Disparagement of peer reviewed, primary scientific research. In the PD report and others, Dr. Goodman attempts to disparage the methods, data, and conclusions of all key papers implicating relevant neurobiology, neurotoxicology, and epidemiology studies linking chloroethylenes to PD.

Comments on the quality of journals and articles Dr. Goodman disparages. The overall quality of the peer-reviewed journal articles that Dr. Goodman criticizes should be noted.

- Many of these articles are peer-reviewed primary research articles, meaning a hypothesis was experimentally tested vs reanalysis of existing data. Articles are first reviewed by editors, usually the Editor-in-Chief, then a subject matter expert, typically an Associate Editor. These individuals are typically world leaders in the overall discipline and the topic area. At this stage, in such high-profile journals, any article that is not a significant advance, rigorously conducted is "desk rejected". Those deemed potentially meritorious are sent out for peer review, typically by 2-4 world leaders with subject matter expertise, but without conflict of interest (i.e., lack of recent co-authored paper, grants, or other conflicts that would impact a rigorous or unbiased review). Pending the return of peer-reviews, the editorial team will typically accept "as is", which is unbelievably rare, request minor revisions (changes to the text), major revisions (major text changes, new experiments), or outright rejection. While there are some variances in each articles path to acceptance (i.e. multiple rounds of required revisions), each published paper in the journals criticized by Dr. Goodman has undergone extensive peer review by leading experts in the field with no financial incentive to support publication or rejection. Thus, these papers have undergone a far greater level of subject matter scrutiny than the approaches applied by Dr. Goodman.

- The body of literature criticized by Dr. Goodman includes world leading journals in the fields of epidemiology, neurology, neuroscience, and toxicology. A few examples are:

    - *Annals of Neurology*. Highly respected neurology journal.
    - *JAMA Neurology*. World leading neurology journal published by the American Medical Association.
    - *Neurobiology of Disease*. Highly respected journal with extensive focus on mechanisms of neurological diseases.
    - *Toxicological Sciences*. Official journal of the Society of Toxicology. The journal has a neurotoxicology section and regularly publishes high profile papers on this topic.

These journals are only a few select examples that contain the high-quality papers Dr. Goodman's report seeks to dismiss and negate. Each of these journals have rigorous peer-review processes. A review of the editorial boards shows evidence of leading scientists in the neurobiology or neurotoxicology of neurodegenerative diseases.

Exemplars of ineffective disparagement. The ineffectiveness of Dr. Goodman's strategy to eliminate the conclusions of an entire body of strong scientific literature is noted above. Here, for the sake of brevity, I provide a number of exemplars of highly ineffective strategies to disparage the findings of an outstanding scientific paper.

> Adamson A, Ilieva N, Stone WJ, De Miranda BR. Low-dose inhalation exposure to trichloroethylene induces dopaminergic neurodegeneration in rodents. Toxicological sciences: an

official journal of the Society of Toxicology. 2023;196(2):218-28. Epub 2023/09/05. doi: 10.1093/toxsci/kfad090. PubMed PMID: 37669148; PMCID: PMC11491929[8].

Conflict of interest declaration: I am not an author on this paper, nor was I a peer reviewer. This paper is directly within my expertise. Overall, the paper assessed whether inhalation in TCE produced a PD phenotype in rodents. I note the paper was published in Toxicological Sciences, the official journal of the Society of Toxicology.

The Adamson article is well respected, genuine science.

As an expert neurotoxicologist I note the following overarching strengths of study design (see my original expert reports for fuller analysis:

- Exposures at or near regulatory levels, appropriately corrected for differences between rodent and human body volumes.
- The study was conducted in both rats and mice, which is far more rigorous than typical studies (most use a single species).
- Rigorous analyses and quantification of neuropathology.
- Rigorous analyses and quantification of appropriate neurobehavioral phenotype.

As an expert neurotoxicologist I note the following overarching impacts of the study findings (see my original expert reports for fuller analysis:

- Clear evidence of alpha-synuclein aggregation (as measured by phosphor-alpha synuclein), an intracellular pathological hallmark of human PD.
- Clear loss of striatal dopaminergic terminals and loss of dopaminergic neurons in the substantia nigra, both of which were rigorously quantified. The resultant neuropathological lesion bears strong relevance to that which occurs in PD.
- Clear evidence of neuroinflammation in the substantia nigra, a pathology well known in human PD.
- Clear evidence of motor deficits, especially in gait disturbances that bear relevance to PD.
- Strong concordance between mouse and rat data for most endpoints.

Goodman's disparagement of the Adamson article

In my view, as someone who regular publishes in this field and reviews such articles as both an Associate Editor (typically with ultimate accept/reject authority) or peer reviewer, I consider this to be one of the strongest preclinical animal model characterizations I have read. However, Dr. Goodman infectively attempt to disparage the impact. Key examples are noted:

1. Dr. Goodman's claim: Inconsistent effects in motor parameters, some increase, some decrease.

   Dr. Cannon's response: Why the claim is invalid: the neurobehavioral findings are highly relevant to PD because they are indicative of gait asymmetry which is typical of human PD[9]. Frankly any neuroscientist who conducts neurobehavioral analyses using multiple tests is well aware that not all measures change in the same direction in response to treatment. The claim demonstrates a lack of understanding of preclinical neurobehavioral models.

2. Dr. Goodman's claim: The loss of dopaminergic neurons in this study (30-50%) did not reach that which occurs in human PD (60-80%).

   Dr. Cannon's response: There is no way to appropriately soften the response to dr. Goodman's claim, which is frankly ridiculous and without any scientific merit. First the study Dr. Goodman cites is nearly 40 years old, prior to the invention of unbiased stereology, which more accurately assesses cell numbers. More recent studies have suggested that there is far less nigrostriatal reserve than previously thought[9]. Dr. Goodman's strategy here is highly troubling. If all environmentally induced pathological lesions in animal models were discounted because they did reach the magnitude associated with human disease, it would put human health at significant risk. As an example, paraquat has been epidemiologically linked to PD and typically produces a <50% magnitude lesion nigrostriatal dopamine system than observed in this TCE study[10,11]. Dr. Goodman's claim here is scientifically baseless. Frankly, such a strategy would be harmful to public health.

3. Dr. Goodman's claim: There are key missing endpoints, such as dopamine in the substantia nigra and mitochondrial function.

   Dr. Cannon's response: Dr. Goodman clearly does not understand the study she reviewed or the neurobiology of PD. It is almost impossible to accurately micro-dissect the substantia nigra of rodents. Moreover, while the dopaminergic cell bodies are in the substantia nigra, the terminals where the dopamine is released are in the striatum. The study chose to use striatal samples for neuropathology, not neurochemistry. It should be noted that the study assessed terminal loss, which would have produced dopamine depletion, as the two measures are related, and the same conclusion would have been drawn[12]. Thus, dedicating precious tissue to other measures does not diminish the conclusions. The same is true for mitochondrial function. Not every possible endpoint can be measured in every single study, which should be rather obvious to any experimental scientist. This paper was a neurobehavioral and neuropathology study. In fact, the group has studied TCE effects on mitochondria another study[13]. The fact that dopamine and mitochondrial dysfunction were not measured in this paper is not a weakness at all.

4. Dr. Goodman's claim: The exposures are high and not valid.

   Dr. Cannon's response: The dose itself is close to several regulatory levels (see Table 1 of the paper in question). The authors justify the dose by length of exposure relative to lifespan of the organism in question (attempting to model years of exposure in humans that have far shorter lifespans), metabolic differences, and surface area differences. Dr. Goodman states that in general rodents are far more sensitive to inhalation exposures than humans. This statement does not consider that key neurobiological differences that likely render rodents less sensitive to PD relevant insults than humans[14]. Even a cursory review of the scientific literature shows that all toxicants with significant links human PD require higher doses that humans are typically exposed to, in order to produce a PD phenotype. Eliminating studies simply because they do not directly align with Dr. Goodman's dose calculations would likely result in damaging impacts to human neurological health.

Despite, her lengthy report, Dr. Goodman's attempt to disparage these high-profile papers should be seen for what it is, an unsuccessful attempt to mislead the reader by a person unqualified in the area of neurotoxicology. The attempts to use quantitative risk assessment approaches to disparage neurotoxicology and epidemiology papers is inappropriate. The papers Dr. Goodman criticizes in large part set out to test hypotheses related to biological plausibility. Here again, risk assessment is the purview of the EPA, and it has clearly determined the links to PD by TCE and the overall neurotoxicity of PCE to be warranted. Thankfully, the US EPA did not follow a strategy similar to Dr. Goodman's reports in setting its final rules to protect the health of Americans.

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Jason Cannon, PhD.

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