Veterans aren’t getting the care they deserve, despite the tireless efforts of advocates, Cohen Veterans Bioscience Board Secretary Theresa Frangiosa said in opening day two of the Summit. One way to move forward, said Board Member Michael Sullivan, is through coordination between Cohen Veterans Bioscience and Cohen Veterans Network that realizes financier-philanthropist Steven A. Cohen’s vision of translating groundbreaking research to the clinic.

• Admiral Brian Losey emphasized the importance of continuous care and monitoring of military personnel over their careers. The idea is not just to prevent or treat PTSD in individuals – but to enhance, measure and reinforce institutional resiliency. Like any combat injury, PTSD compromises talented service members’ capacity to move up through the ranks and shape the future of the armed forces.
The tough question she asked herself when starting Cohen Veterans Bioscience, Dr. Magali Haas reported, was “What can this organization bring to the table when billions of dollars are necessary to bring a single CNS drug to market?” Today, the resounding answer is that a patient-driven, nimble and flexible organization adds tremendous value. Embracing the core principles of imagination, integration and acceleration, Cohen Veterans Bioscience is positioned to investigate the biomarker landscape, improve the validity of animal models and harness the complexity of big data using computational modeling methods.

- **Pulling useful insights** about PTSD from all the relevant scientific knowledge is like trying to book a flight using an unabridged map of the North American flight network, said David King, founder of Exaptive, Inc. His company is working on a PTSD KnowledgeMap™ that helps researchers see meaningful connections between data points much the way online travel sites help people find a flight.

**Promising results in preclinical studies** often fail in human testing due to the lack of validity in animal models. Our AMP IT UP initiative is trying to bridge that gap by developing preclinical models that more accurately reflect PTSD. However, as Dr. Kerry Ressler of Harvard Medical School points out, the goal is not to make a “PTSD mouse” but to model relevant processes that are known to occur in both species.

- **There are over 630,000** ways to reach a PTSD diagnosis using the DSM-V. But this complexity does have a silver lining, said Dr. Amit Etkin of Stanford University. It gives us the opportunity to rethink how we define this disease. He presented research showing there is a subset of PTSD patients who tend not to benefit from prolonged exposure therapy. But data from various sources raises the possibility that transcranial magnetic stimulation (TMS) might cause shifts in brain activity that could improve their response to that approach. He is working on the BEST-PTSD (Biomarker Establishment for Superior Treatment in PTSD) program – a new partnership with Cohen Veterans Bioscience – to help explore which patients will benefit from treatment in the real world.
• **Treatments like the TMS-psychotherapy combination** that Dr. Etkin described will be challenging to develop. Several speakers noted that it is difficult enough to test drugs in preclinical animal models. Determining the effectiveness of multimodal therapies in ways that can be reliably translated to humans will be even more challenging, said Dr. Larry Hardy of Sunovion Pharmaceuticals.

• **Like Alzheimer’s Disease, Traumatic Brain Injury (TBI) is a tauopathy**, one of many conditions that involves the accumulation of tau protein in the brain. Tau is currently sampled from cerebrospinal fluid (CSF) or blood plasma, said Dr. Mony de Leon of New York University. However, there may be a better way: recent research shows that CSF leaks out of the brain’s olfactory bulb into the deep recesses of the nose.

• **Only 26 studies of PTSD** have been published in the last 60 years that use post-mortem tissue, compared with 4,500 studies of Alzheimer’s Disease. The Cohen Brain Collection – a collaboration between Cohen Veterans Bioscience and the Harvard Brain Tissue Research Center – aims to fill that gap by collecting high-quality brain specimens. To truly understand PTSD, said HBTRC co-director Dr. Sabina Berretta, we must look closely at the human brain – and post-mortem tissue is our only way of accessing this critical organ. As Dr. Berretta concluded, “The gift of a brain is a gift of knowledge.”