Since 2002, MIT has hosted the Institute for Soldier Nanotechnologies (ISN) (http://isnweb.mit.edu), an interdisciplinary research center established under contract with the US Army.

The ISN mission is to help the Army dramatically improve the protection and survivability of the soldier by working at and extending the frontiers of nanotechnology through fundamental research and transitioning with our Army and industry partners. The institute’s goal is to combine high-tech protection and survivability capabilities with low weight and increased comfort. The ISN mission includes not only decreasing the weight soldiers carry but also improving blast and ballistic protection, creating new methods of detecting and detoxifying chemical and biological analytes, providing physiological monitoring and automated medical intervention, and enhancing situational awareness.

ISN research is mostly conducted by graduate students completing theses, by postdoctoral researchers, and by undergraduates working through the Undergraduate Research Opportunities Program (UROP) (http://catalog.mit.edu/mit/undergraduate-education/academic-research-options/undergraduate-research-opportunities-program). These researchers work in a 40,000-sq-ft facility on the MIT campus equipped with state-of-the-art laboratories designed and built for nanotech research.

Most theses are co-supervised by two or more faculty members representing different areas of technical expertise. Approximately 50 MIT faculty members participate in ISN research annually. They hail from more than a dozen academic departments and centers, making ISN one of the most scientifically diverse research organizations at MIT.

In addition, many projects involve the participation of visiting experts both from industry and from Army laboratories and centers of excellence. These experts often bring practical perspectives that contribute significantly to the rich learning environment at ISN. Industry partners help to turn laboratory innovations into real products and scale them up for affordable manufacture. Army partners collaborate on basic and applied research, provide guidance on the soldier relevancy of ISN projects, and participate in transitioning.

Students seeking to perform thesis or UROP research at ISN should contact affiliated faculty within their own department. For further information, contact ISN (isn@mit.edu), 617-324-4700.