

# **Jens O.M. Karlsson, PhD**

**Associate Professor of Mechanical Engineering | College of Engineering at Villanova University**  
Villanova, PA, US

Jens Karlsson, PhD, specializes in biothermal sciences, including cryobiology (cooling) and hyperthermic processes (heating).

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## **Biography**

Dr. Karlsson is a leading expert in the biothermal sciences. These include cryobiology (cooling) and hyperthermic processes (heating). Cryobiology investigates cryopreservation and cryosurgery. Cryopreservation is used in cell banking for many areas of biotechnology. It is also used for cell therapy (stem cells), in vitro fertilization, blood cell banking. Cryosurgery can be used to destroy certain cancerous cells. Hyperthermic processes include the treatment of burn injuries and fever. They also cover thermal ablation (removal), used in the treatment of cancers and in transdermal drug delivery.

Dr. Karlsson is a founding member of the Cellular & Molecular Bioengineering Research Group, and serves as Director of the College of Engineering Genomics Core Laboratory.

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## **Industry Expertise**

Research, Biotechnology, Education/Learning

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## **Areas of Expertise**

Bioengineering, Cryosurgery, Biophysical Mechanisms, Cryopreservation, Intracellular Ice Formation, Hyperthermic Processes

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## **Education**

**Massachusetts Institute of Technology**  
PhD

**Massachusetts Institute of Technology**  
SM

**Massachusetts Institute of Technology**  
SB

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