

**Title:** How ice nucleating protein helps to protect public health

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**Abstract:**

Most biopharmaceuticals such as vaccines are thermally sensitive.<sup>4</sup> Global vaccination programs against infectious diseases and toxins are estimated to save approximately 3 million lives yearly. Tragically, however, another 3 million individuals (primarily children) die of vaccine-preventable diseases. A significant portion of this problem results from the thermal instability of many of the currently used vaccines.<sup>5</sup> Since the biopharmaceutical distribution system “Cold Chain” often has breaks the only way to identify temperature abuse is through accurate reliable monitoring. This presentation will discuss the development, commercialization and desired technical improvements of a freeze indicator that uses ice nucleating protein as a key component.

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