Mr. Frank Heavey  
Executive Director, Expect Miracles Foundation  
PO Box 51267  
Boston, MA 02205  

December 24, 2018  

Dear Frank:  

This was a very exciting year for my laboratory at Memorial Sloan Kettering Cancer Center, thanks to generous funding from the Expect Miracles Foundation. Your leadership and the Foundation’s many contributors allowed us to make unprecedented advances that I believe will make real differences in the lives of patients.

We are moving forward based on our findings that we published in *Nature Materials* in early 2018. The article acknowledged the Foundation’s strong support and drew widespread attention. In it, we demonstrated how we could use artificial intelligence to package precision therapies into nanoparticles and effectively used them to target cancer cells in laboratory models.

This year, we achieved a remarkable milestone by using our nanoparticles to effectively treat brain tumors in mice. Cancer would have killed the mice in three days—but the nanoparticles kept them alive throughout treatment. Since drug delivery to brain tumors is extremely difficult, this accomplishment opens the door to new therapies for human brain cancers.

We’re also working to move our nano-drug therapies to clinical trials for breast and head & neck cancers. This treatment offers a giant leap forward in which patients may receive precisely targeted, highly effective treatments that leave few or no side effects. We are working steadily with clinical drug development experts to bring this technology to patients as fast as possible.

We have also made headway in developing nanosensors with the potential to detect early-stage cancer. The technology will work like a fitness tracker to detect disease when it is easier to treat. We are also developing nanosensors to speed drug development. We discovered a sensor to detect fatty-liver disease progression, which results in liver cancer, in live animals—a development that could accelerate drug discovery.

My colleagues and I are grateful to the Expect Miracles Foundation for supporting us in our work and have included an attachment of our 2018 published studies that recognize the Foundation. This coming year, I anticipate that we will see real progress to move several of these technologies to patients. This level of progress would not have been possible without the support of Expect Miracles. I thank you and your colleagues at Expect Miracles for your impressive work and dedication to this cause.

Sincerely,

Daniel A. Heller, PhD  
Head, Cancer Nanomedicine Laboratory  
Bristol-Myers Squibb/James D. Robinson III Junior Faculty Chair  
Associate Member, Molecular Pharmacology Program


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