



Melanie Ecker, PhD
Research Associate
Phone: 972-883-7249
Email: melanie.ecker@utdallas.edu

Center for Engineering Innovation
The University of Texas at Dallas
800 West Campbell Rd. (BSB 13)
Richardson, TX 75080

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Dear Dr. Singh,

Thanks for inviting us to submit an article to JoVE. On behalf of my coauthors, I am pleased to submit the attached manuscript entitled "*The use of environmental dynamic mechanical analysis to predict the softening behavior of neural implants*" which we ask you to consider for publication as methods article with JoVE in the section Bioengineering.

This manuscript describes a method that allows predicting the *in vivo* mechanical behavior materials used for neural implants utilizing environmental dynamic mechanical analysis (DMA). Measuring DMA in solution gives an insight into the softening behavior of polymeric materials and allows quantifying the plasticization of those materials. It also allows for detailed studies of materials durability, and behavior after various treatments such as sterilization.

Beyond the appeal for bioelectronic medicines, we believe that understanding the behavior of polymers under body conditions would be of interest for a variety of biomedical applications. Overall, we think that our method improves the ability to characterize materials behavior *in vitro* and can therefore reduce the need of *in vivo* studies

To our knowledge, this method represents a significant advancement for future applications of responsive substrates for biomedical devices and is an important step towards chronic *in vivo* studies where reliable devices are a key step.

Please do not hesitate to contact me with any questions. Thank you for your consideration.

Sincerely,

A handwritten signature in blue ink that reads "Melanie Ecker".

Melanie Ecker, PhD