

# Loss of Anti-Spike Antibodies Following mRNA Vaccination for COVID-19 Among Patients with Multiple Myeloma

Samuel D. Stampfer<sup>1</sup>, Sean Bujarski<sup>2</sup>, Merissa-Skye Goldwater<sup>2</sup>, Scott Jew<sup>2</sup>, Bernard Sean Regidor<sup>3</sup>, Haiming Chen<sup>2</sup>, Ning Xu<sup>2</sup>, Mingjie Li<sup>2</sup>, Eddie Fung<sup>3</sup>, Regina A. Swift<sup>3</sup>, Bethany Beatty<sup>3</sup>, Shahrooz Eshaghian<sup>4</sup>, and James Berenson, MD, Inc.<sup>2</sup>

<sup>1</sup>Emory University

<sup>2</sup>Institute for Myeloma and Bone Cancer Research

<sup>3</sup>Berenson Cancer Center West Hollywood CA

<sup>4</sup>Cedars Sinai Medical Center Division of Hematology and Oncology Los Angeles CA

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## Abstract

**Background** Multiple myeloma (MM) patients have variable responses to mRNA vaccination to COVID-19. Little is known regarding their vaccine-induced antibody levels over time. **Methods** We monitored spike IgG antibody levels over 24 weeks among a subset of 18 MM patients who showed a full response after two mRNA vaccinations. MM patients had a more rapid decline in antibody levels as compared to 8 healthy controls, with power law half-lives of 72 days (versus 107 days) and exponential half-lives of 37 days (versus 51 days). **Results** The patients with longer SARS-CoV-2 antibody half-lives were more likely to have undetectable monoclonal protein than those with shorter half-lives, suggesting better disease control may correlate with longer duration of vaccine-induced antibodies. Regardless, by 16 weeks post-second dose of mRNA vaccination, the majority of patients had antibody levels below 250 binding arbitrary units per milliliter, which would be unlikely to contribute significantly to preventing COVID-19. **Conclusions** Thus, even MM patients who respond adequately to vaccination are likely to require more frequent booster doses than the general population.

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