Non-immunogenic synthetic proteins composed of D-amino acids potently inhibit tumor growth

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Chemical protein synthesis, mirror image phage display and structure guided design were used to create multivalent potent inhibitors of both VEGF-A[1] and PD-1 composed entirely of D-amino acids and glycine. In addition to their inhibitory activity, these proteins were resistant to proteases and did not generate antibody responses in rodent models during treatment or after repeated subcutaneous immunizations. These examples join a growing list of new potential products in development composed of D-amino acids.

[1] PS Marinec, KE Landgraf, M Uppalapati, G Chen, D Xie, Q Jiang, Y Zhao, A Petriello, K Deshayes, S Kent, D Ault-Riche, S Sidhu, *ACS Chem Biol*, 2021, *16*, 548-556.