

Phenylboronic acid or benzeneboronic acid, abbreviated as $\text{PhB}(\text{OH})_2$ where Ph is the phenyl group C_6H_5 -, is a boronic acid containing a phenyl substituent and two hydroxyl groups attached to boron. Phenylboronic acid is a white powder and is commonly used in organic synthesis

Although injectable [hydrogels](#) show promise for promoting healing of [lesions](#) and health of surrounding [tissue](#), enabling cellular [ingrowth](#) and restoring [neural tissue](#) continue to be challenging. Hu et al. hypothesized that these challenges arise in part from the mismatch of composition, stiffness and [viscoelasticity](#) between the hydrogel and the brain [parenchyma](#), and tested this [hypothesis](#) by developing and evaluating a self-healing hydrogel that not only mimicked the composition, but also the stiffness and viscoelasticity of native [brain parenchyma](#). The hydrogel was crosslinked by dynamic boronate ester bonds between [phenylboronic acid](#) grafted [hyaluronic acid](#) (HA-PBA) and dopamine grafted [gelatin](#) (Gel-Dopa). This HA-PBA/Gel-Dopa hydrogel could be injected into a lesion [cavity](#) in a shear-thinning manner with rapid [hemostasis](#), high tissue [adhesion](#) and efficient self-healing. They tested this in an [in vivo mouse model](#) of brain lesions and found the multi-functional injectable hydrogel to support neural cell [infiltration](#), decrease [astrogliosis](#) and glial [scars](#), and close the lesions. The results suggest a role for [extracellular matrix](#)-mimicking [viscoelasticity](#) in [brain lesion](#) healing, and motivate additional [experimentation](#) in larger [animals](#) as the technology progresses towards potential application in humans ¹⁾.

¹⁾

Hu Y, Jia Y, Wang S, Ma Y, Huang G, Ding T, Feng D, Genin GM, Wei Z, Xu F. An ECM-Mimicking, Injectable, Viscoelastic Hydrogel for Treatment of Brain Lesions. Adv Healthc Mater. 2022 Nov 18:e2201594. doi: 10.1002/adhm.202201594. Epub ahead of print. PMID: 36398536.

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