

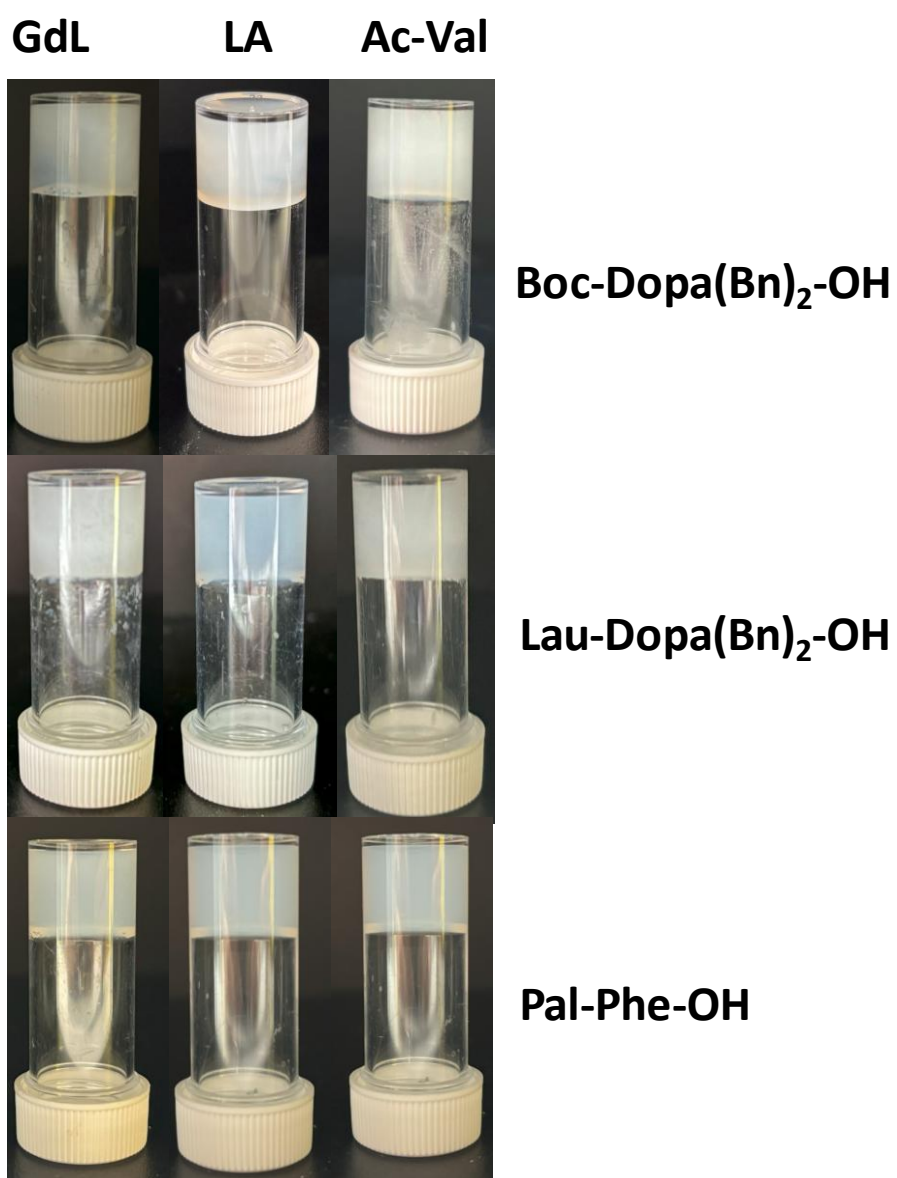
## SUPPORTING INFORMATION

### Simple pH-Triggered Control over Hydrogel Formation by Acetyl Valine

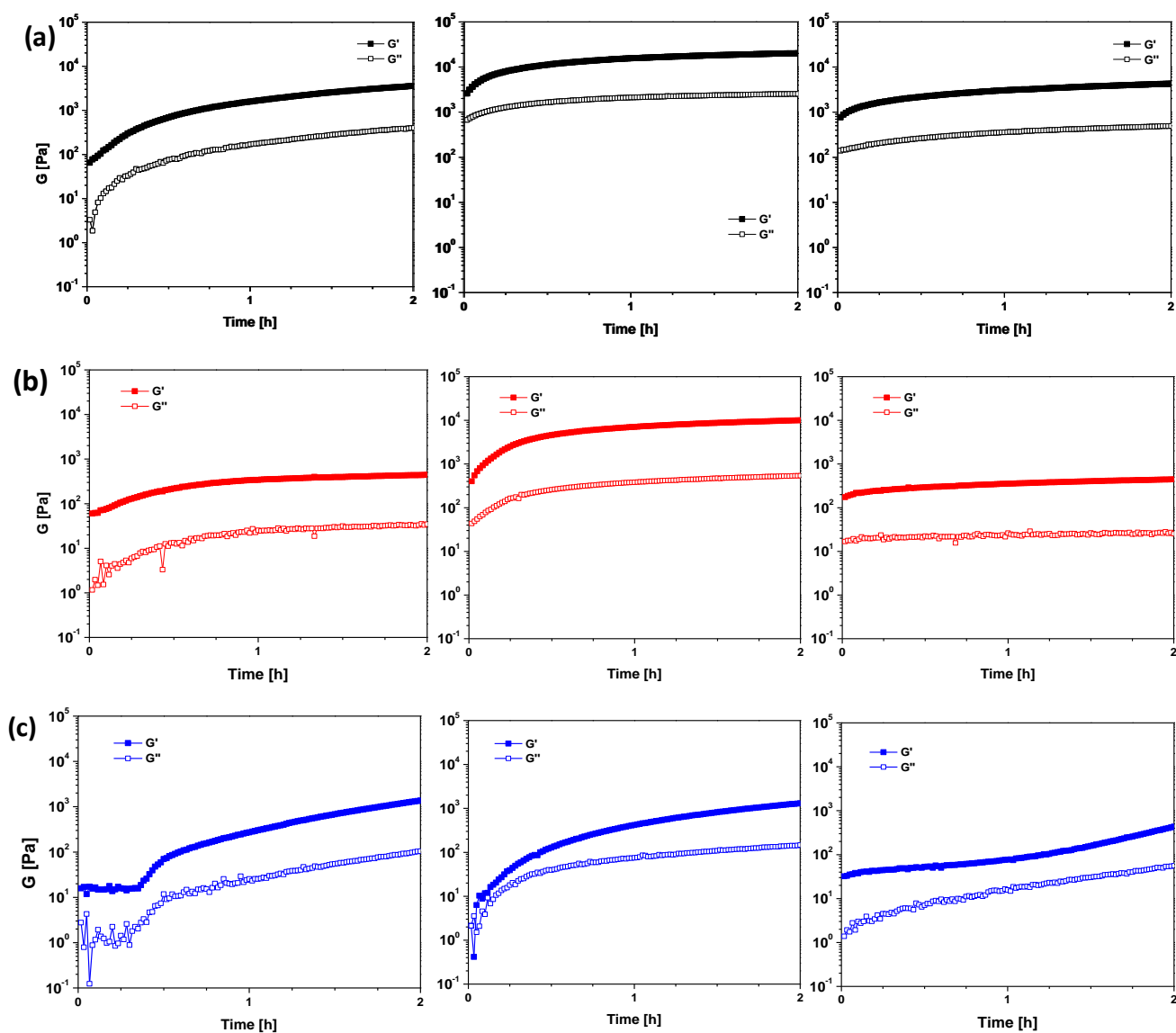
Roberta Stile, Devis Montroni, Demetra Giuri and Claudia Tomasini \*

Dipartimento di Chimica Giacomo Ciamician, Università di Bologna, Via Piero Gobetti, 85, 40129 Bologna, Italy

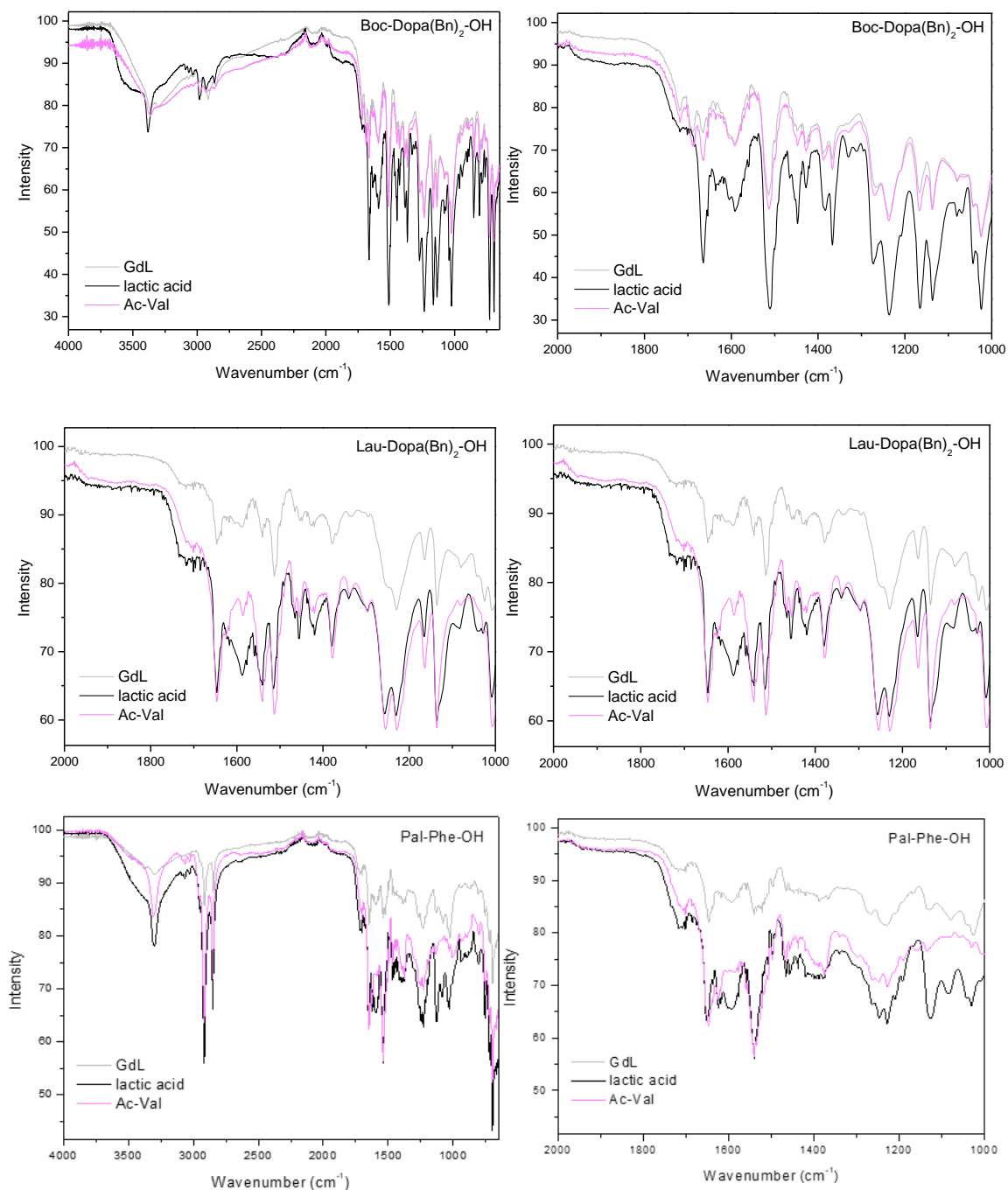
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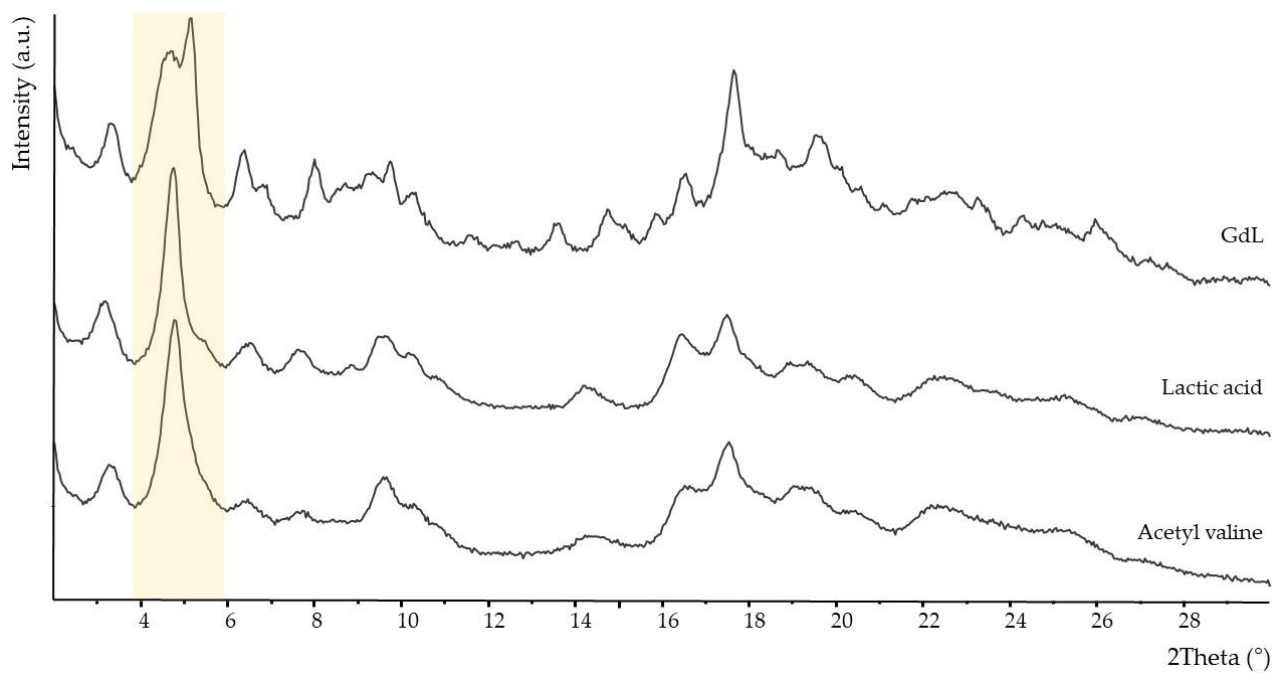
**Figure S1.** Photographs of gels triggered with 1.3 equiv. of GdL, LA and Ac-Val.



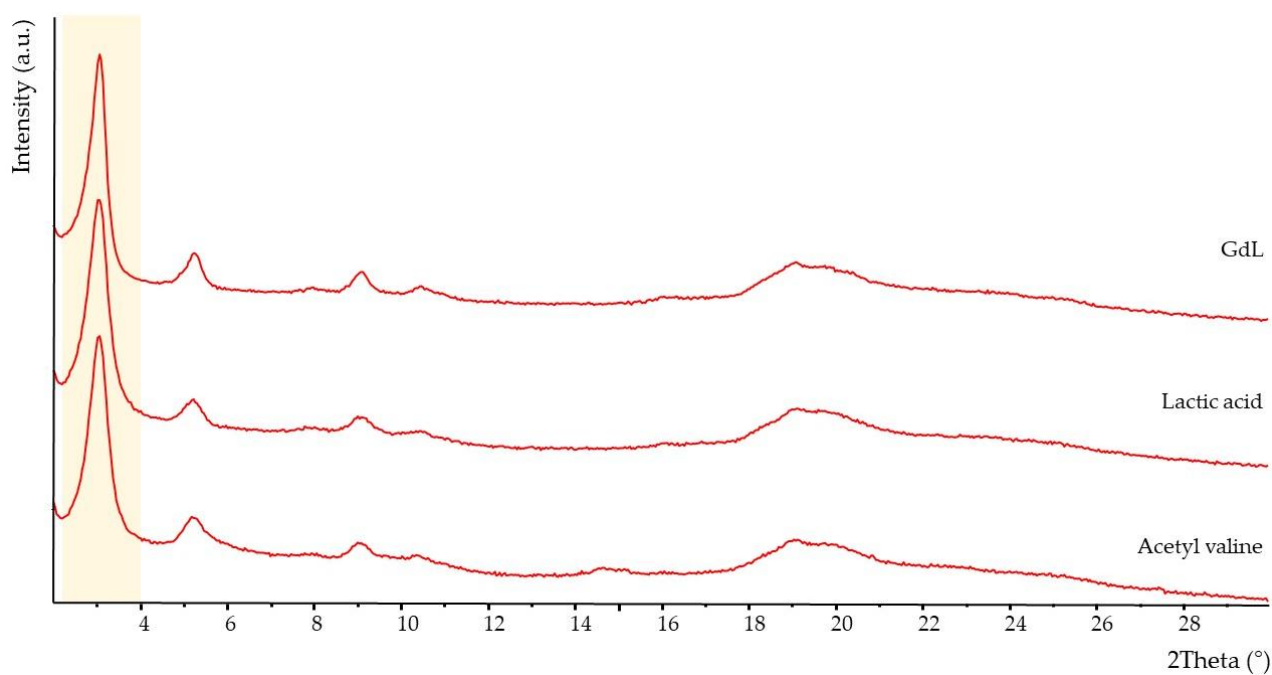
**Figure S2.** From top to bottom: results for time sweep tests of the hydrogels of Boc-Dopa(Bn)<sub>2</sub>-OH **A** (black), Lau-Dopa(Bn)<sub>2</sub>-OH **B** (red) and Pal-Phe-OH **C** (blue), triggered with GdL (left), LA (middle) and acetyl valine (right), always 1.3 equiv.



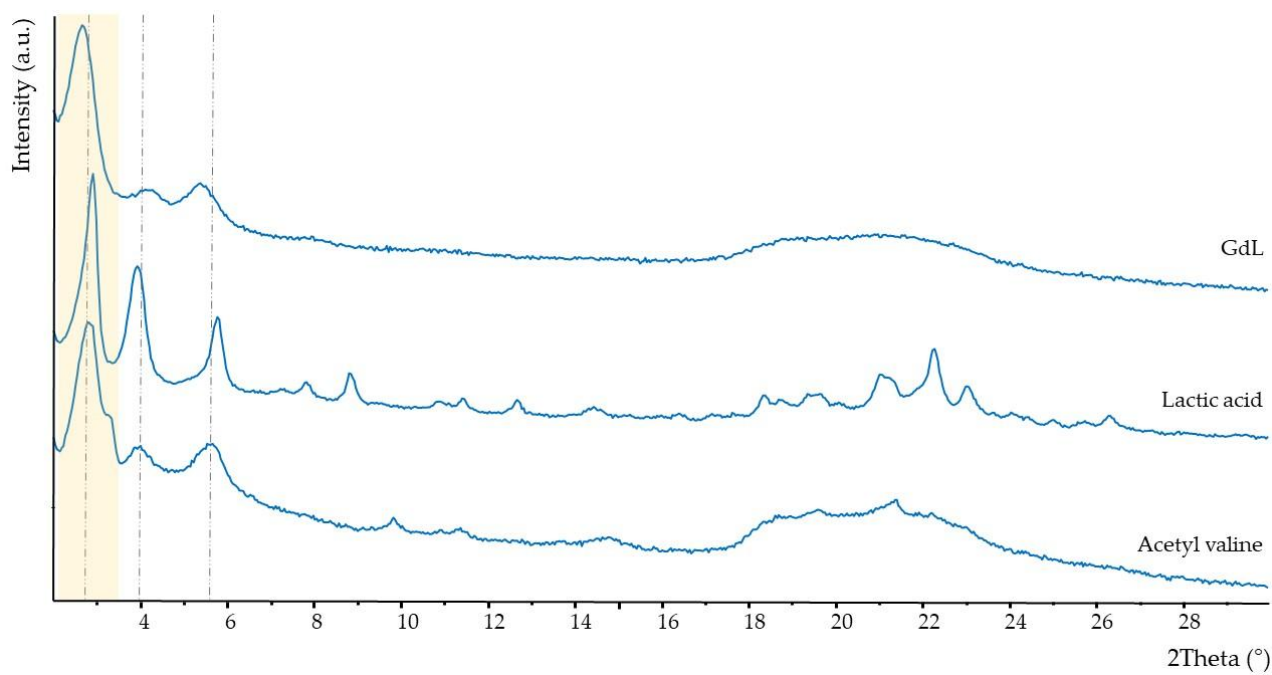
**Figure S3.** ATR-IR spectra of aerogels obtained with gels triggered with 1.3 equiv. of GdL (grey line), LA (black line) and Ac-Val (purple line). From to top to bottom: Boc-Dopa(Bn)<sub>2</sub>-OH, Lau-Dopa(Bn)<sub>2</sub>-OH, Pal-Phe-OH.



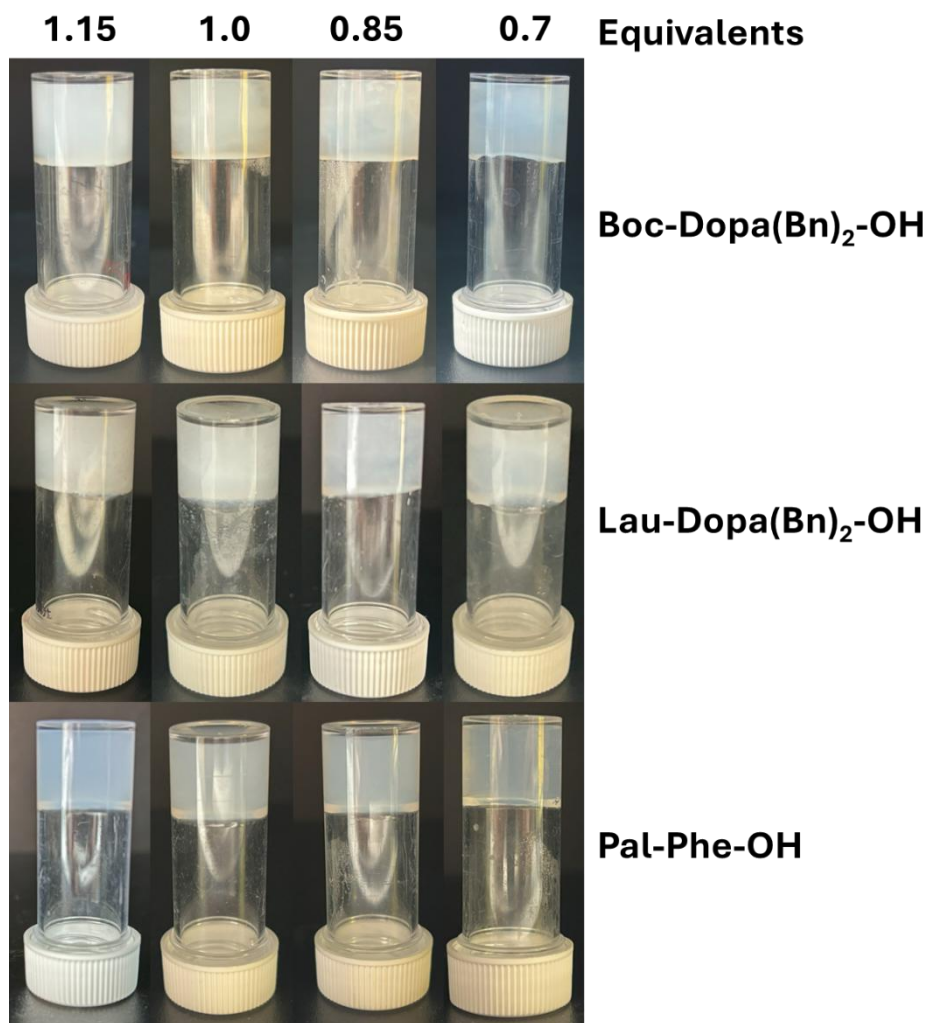
**Figure S4.** XRPD analyses of Boc-Dopa(Bn)<sub>2</sub>-OH aerogels obtained with gels triggered with 1.3 equiv. of GdL (top), LA (middle) and Ac-Val (bottom). A yellow section was added to highlight the main diffraction peak.



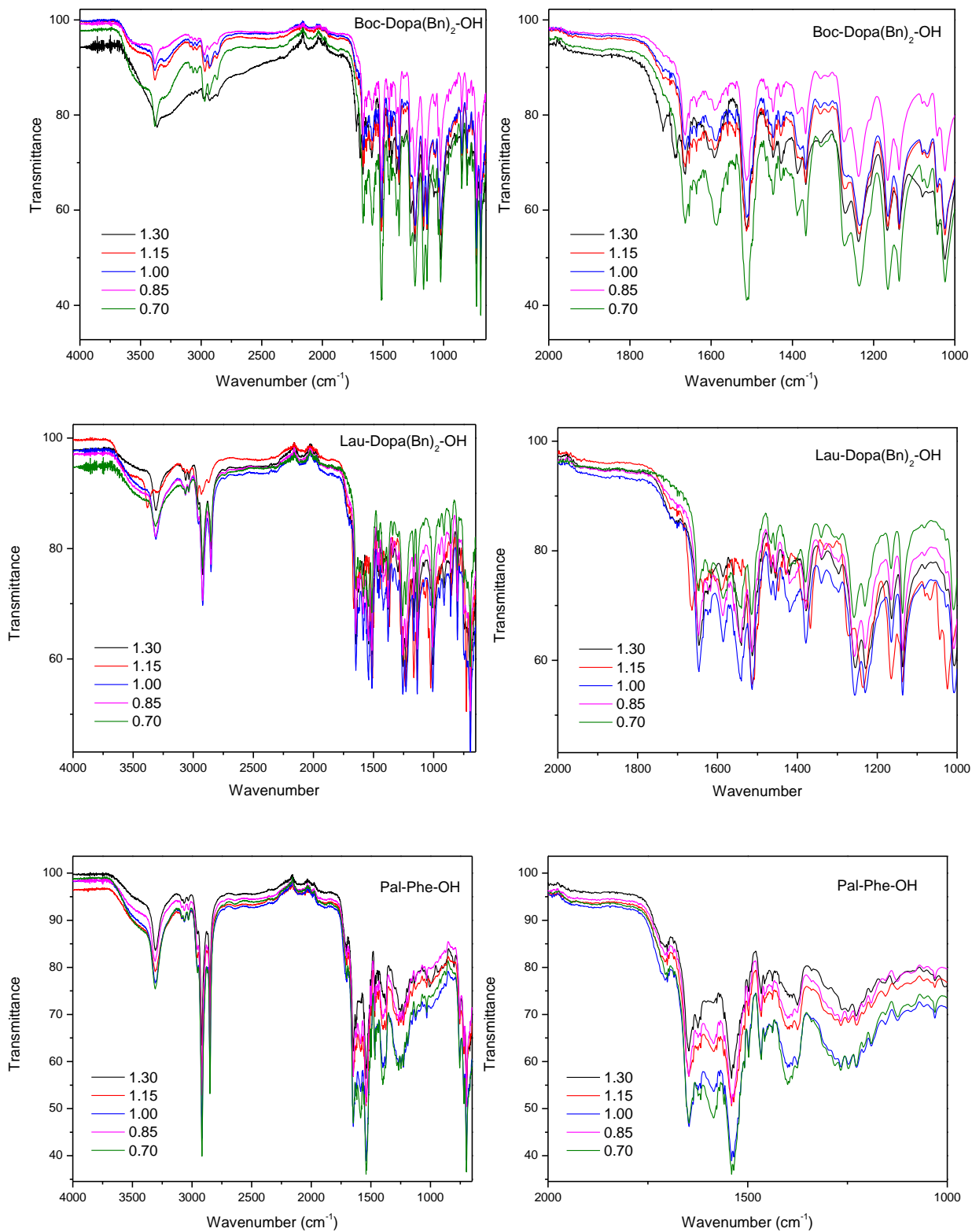
**Figure S5.** XRPD analyses of Lau-Dopa(Bn)<sub>2</sub>-OH aerogels obtained with gels triggered with 1.3 equiv. of GdL (top), LA (middle) and Ac-Val (bottom). A yellow section was added to highlight the main diffraction peak.



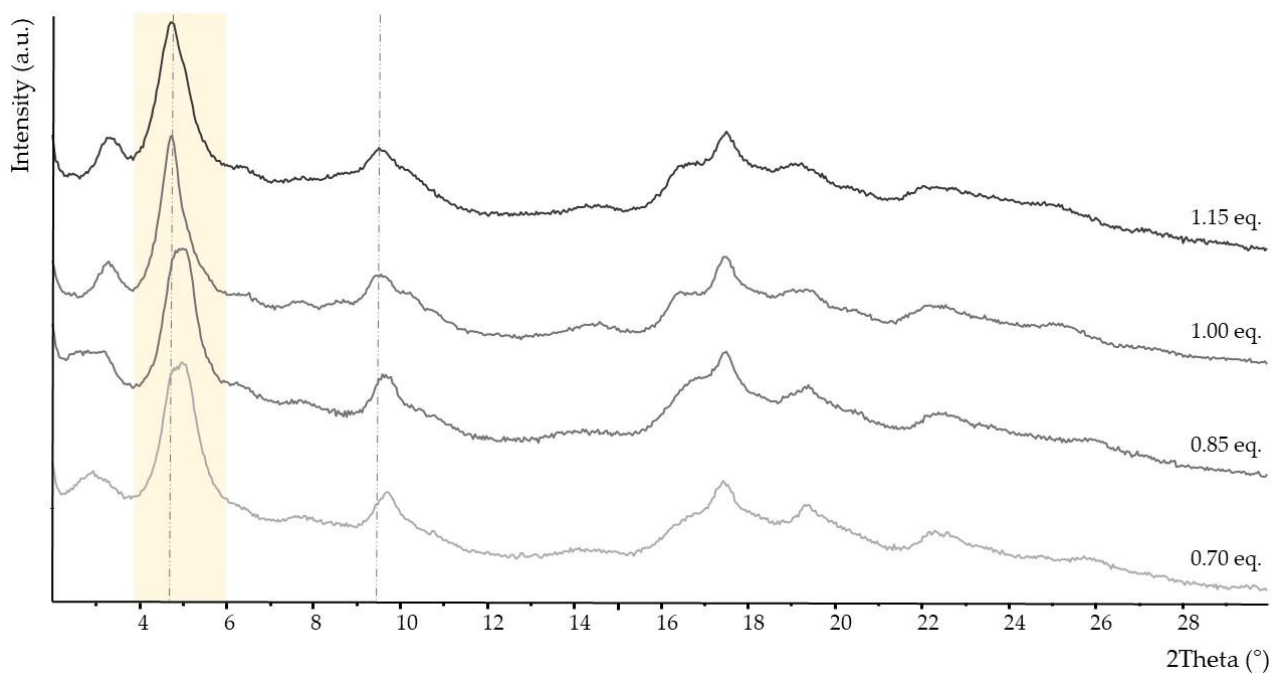
**Figure S6.** XRPD analyses of Pal-Phe-OH aerogels obtained with gels triggered with 1.3 equiv. of GdL (top), LA (middle) and Ac-Val (bottom). A yellow section was added to highlight the main diffraction peak while dashed lines indicate the peak position of the aerogel obtained using Ac-Val where shifts are observed.



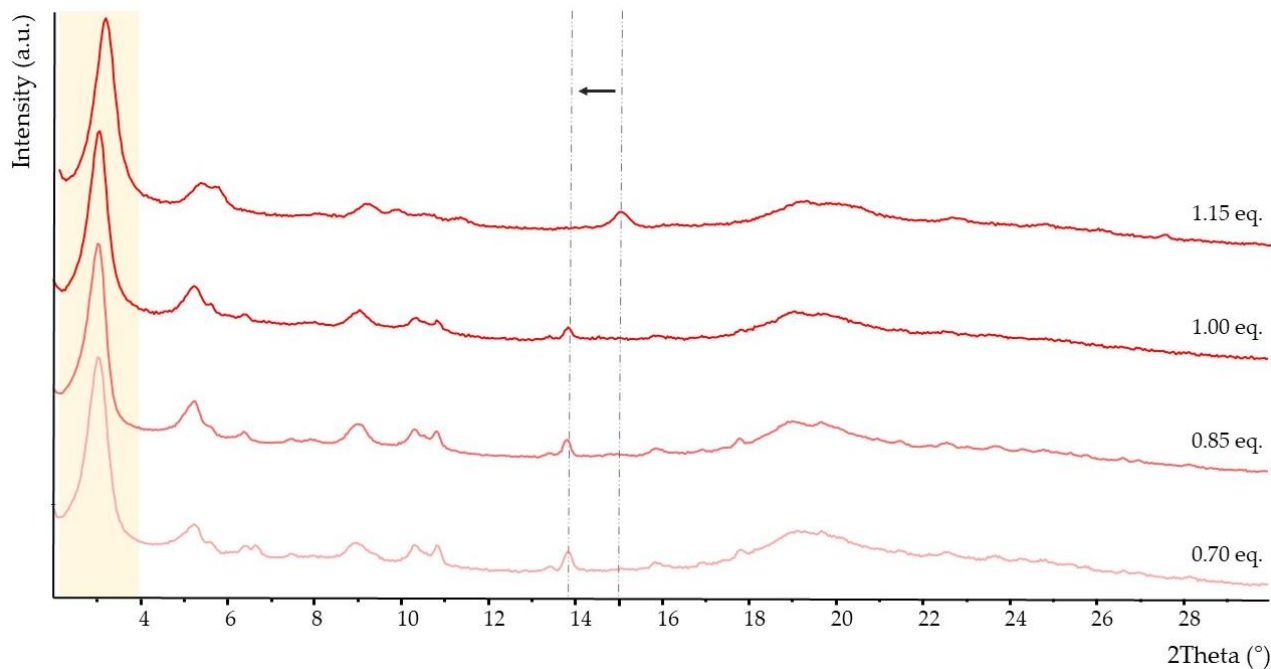
**Figure S7.** Photographs of gels triggered with decreasing equivalents of Ac-Val



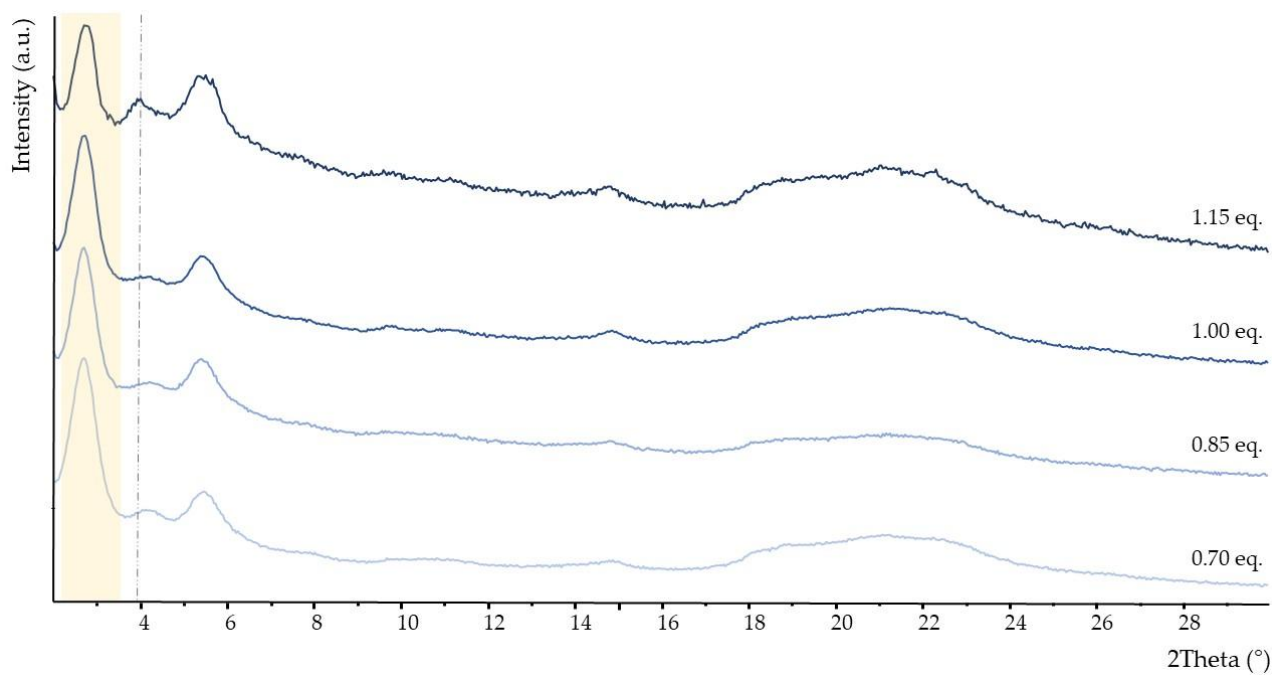
**Figure S8.** ATR-IR spectra of aerogels obtained with gels triggered with decreasing equivalents of Ac-Val. From top to bottom: Boc-Dopa(Bn)<sub>2</sub>-OH, Lau-Dopa(Bn)<sub>2</sub>-OH, Pal-Phe-OH.



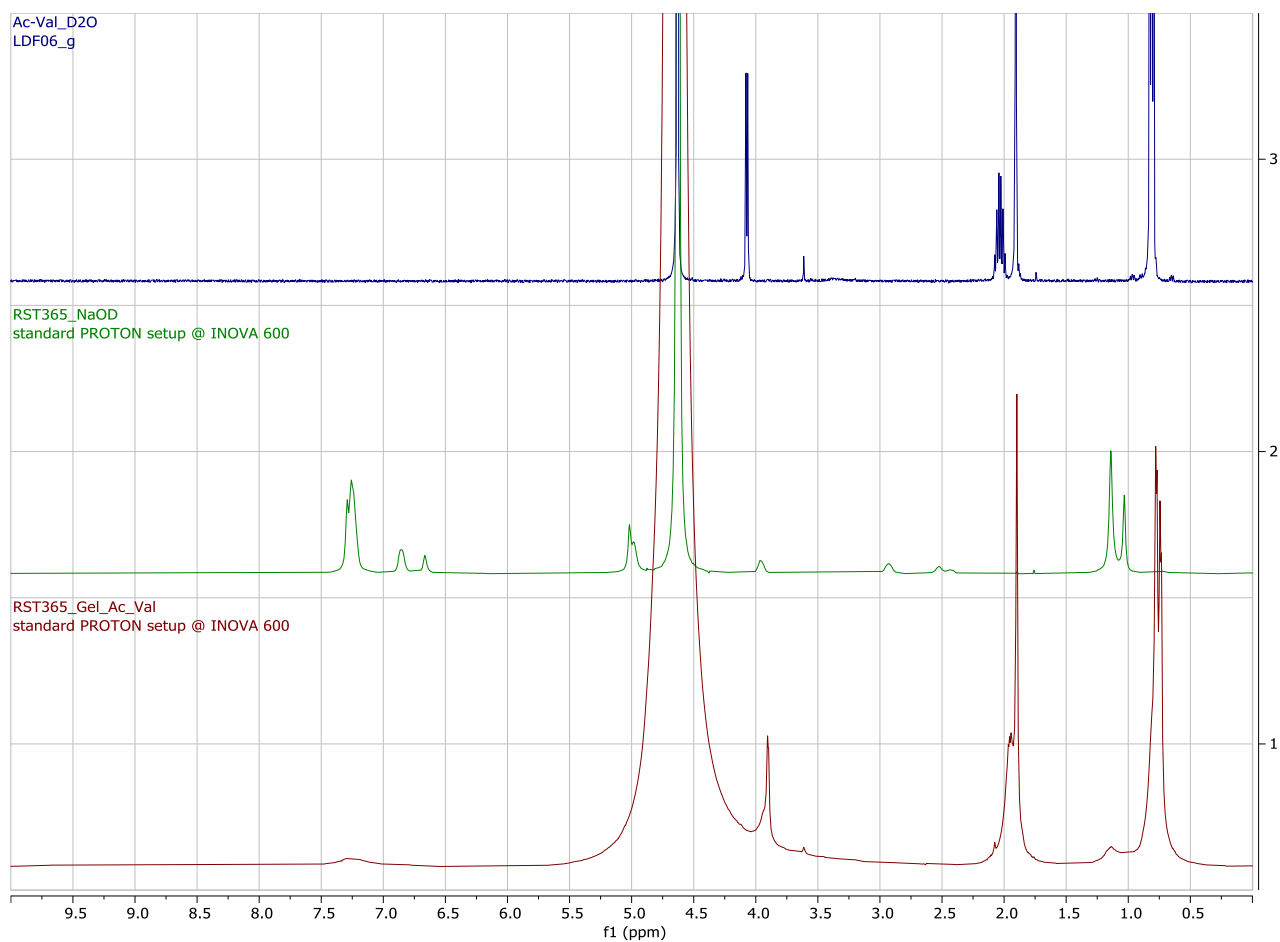
**Figure S9.** XRPD analyses of Boc-Dopa(Bn)<sub>2</sub>-OH aerogels obtained with different equivalents of acetyl valine. From top to bottom: 1.15 equivalents, 1.00 equivalents, 0.85 equivalents, and 0.70 equivalents. A yellow section was added to highlight the main diffraction peak while dashed lines indicate the position of peaks of the aerogel obtained using 1.15 eq. where shifts are observed.



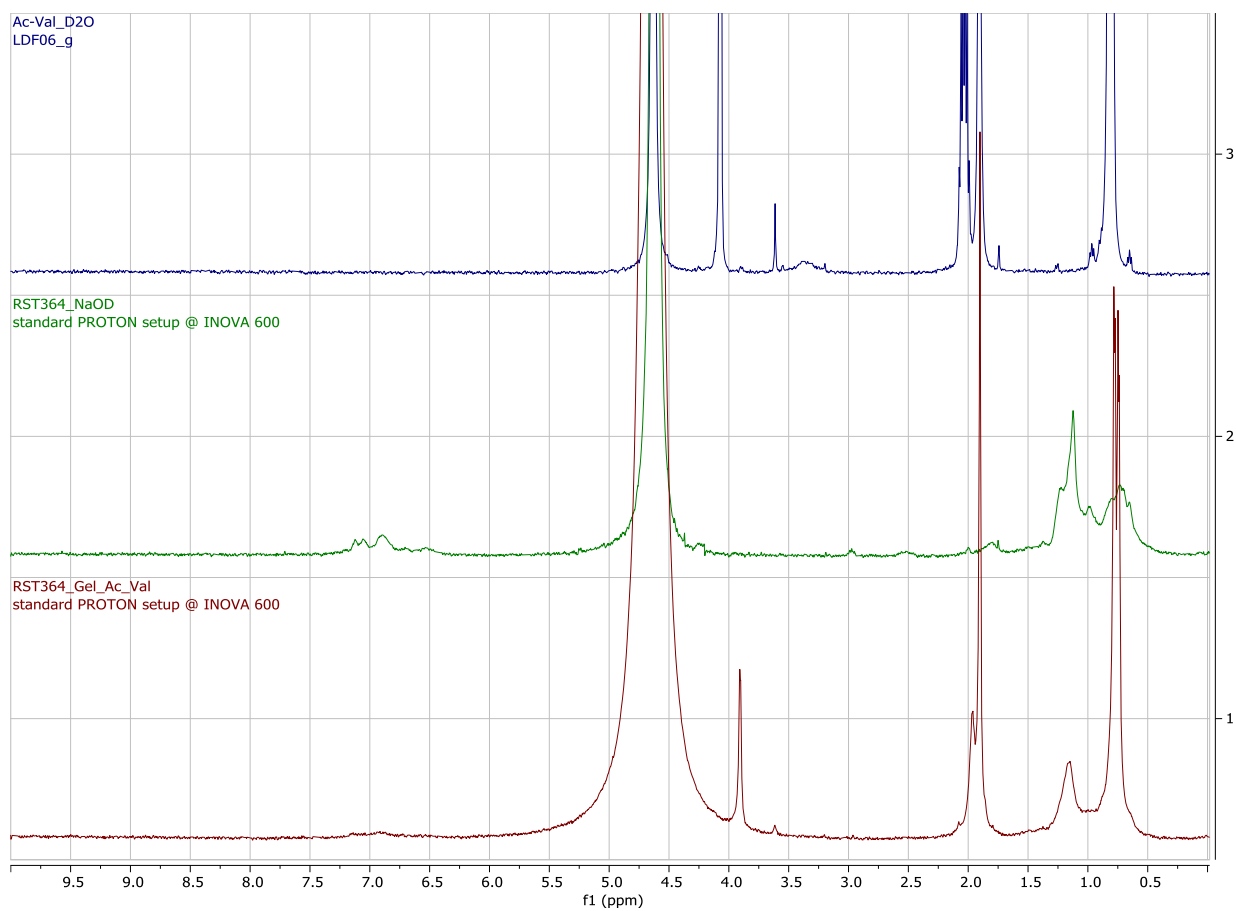
**Figure S10.** XRPD analyses of Lau-Dopa(Bn)<sub>2</sub>-OH aerogels obtained with different equivalents of acetyl valine. From top to bottom: 1.15 equivalents, 1.00 equivalents, 0.85 equivalents, and 0.70 equivalents. A yellow section was added to highlight the main diffraction peak while dashed lines indicate the position of peaks of the aerogel obtained using 1.15 eq. where shifts are observed.



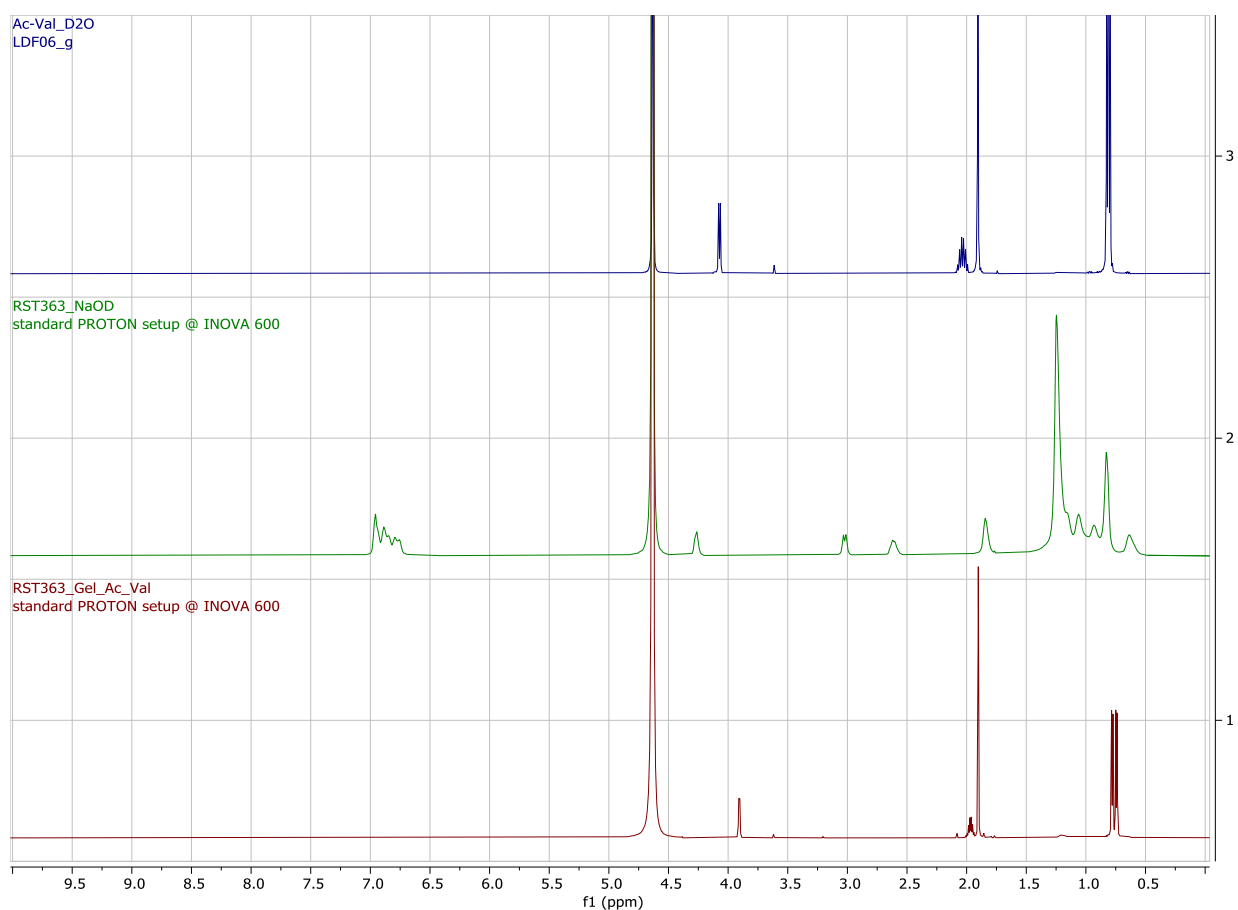
**Figure S11.** XRPD analyses of Pal-Phe-OH aerogels obtained with different equivalents of acetyl valine. From top to bottom: 1.15 equivalents, 1.00 equivalents, 0.85 equivalents, and 0.70 equivalents. A yellow section was added to highlight the main diffraction peak while dashed lines indicate the position of peaks of the aerogel obtained using 1.15 eq. where shifts are observed.



**Figure S12.**  $^1\text{H}$  NMR spectra of hydrogels obtained from Boc-L-DOPA(Bn) $_2$ -OH triggered with Ac-Val (0.7 equiv.) in  $\text{D}_2\text{O}$ . From top to bottom: solution of Ac-Val in  $\text{D}_2\text{O}$ ; solution of Boc-DOPA(Bn) $_2$ -OH in  $\text{D}_2\text{O}$  and NaOD; hydrogel obtained adding Ac-Val to the previous solution. The peaks of the gelator disappear while the peaks of Ac-Val are still visible, as the molecule is not involved in the network formation.



**Figure S13.** <sup>1</sup>H NMR spectra of hydrogels obtained from Lau-Dopa(Bn)<sub>2</sub>-OH triggered with Ac-Val (0.7 equiv.) in D<sub>2</sub>O. From top to bottom: solution of Ac-Val in D<sub>2</sub>O; solution of Lau-Dopa(Bn)<sub>2</sub>-OH in D<sub>2</sub>O and NaOD; hydrogel obtained adding Ac-Val to the previous solution. The peaks of the gelator disappear while the peaks of Ac-Val are still visible, as the molecule is not involved in the network formation.



**Figure S14.** <sup>1</sup>H NMR spectra of hydrogels obtained from Pal-Phe-OH triggered with Ac-Val (0.7 equiv.) in D<sub>2</sub>O. From top to bottom: solution of Ac-Val in D<sub>2</sub>O; solution of Pal-Phe-OH in D<sub>2</sub>O and NaOD; hydrogel obtained adding Ac-Val to the previous solution. The peaks of the gelator disappear while the peaks of Ac-Val are still visible, as the molecule is not involved in the network formation.