



This is a repository copy of *H₂O₂ Enables Convenient Removal of RAFT End-Groups from Block Copolymer Nano-Objects Prepared via Polymerization-Induced Self-Assembly in Water.*

White Rose Research Online URL for this paper:
<http://eprints.whiterose.ac.uk/112210/>

Version: Supplemental Material

Article:

Jesson, C.P., Pearce, C.M., Simon, H. et al. (6 more authors) (2017) H₂O₂ Enables Convenient Removal of RAFT End-Groups from Block Copolymer Nano-Objects Prepared via Polymerization-Induced Self-Assembly in Water. *Macromolecules*, 50 (1). pp. 182-191. ISSN 0024-9297

<https://doi.org/10.1021/acs.macromol.6b01963>

Reuse

This article is distributed under the terms of the Creative Commons Attribution (CC BY) licence. This licence allows you to distribute, remix, tweak, and build upon the work, even commercially, as long as you credit the authors for the original work. More information and the full terms of the licence here:
<https://creativecommons.org/licenses/>

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.



eprints@whiterose.ac.uk
<https://eprints.whiterose.ac.uk/>

Supporting Information for:

H₂O₂ enables convenient removal of RAFT end-groups from block copolymer nano-objects prepared via polymerization-induced self-assembly in water

C. P. Jesson et al.

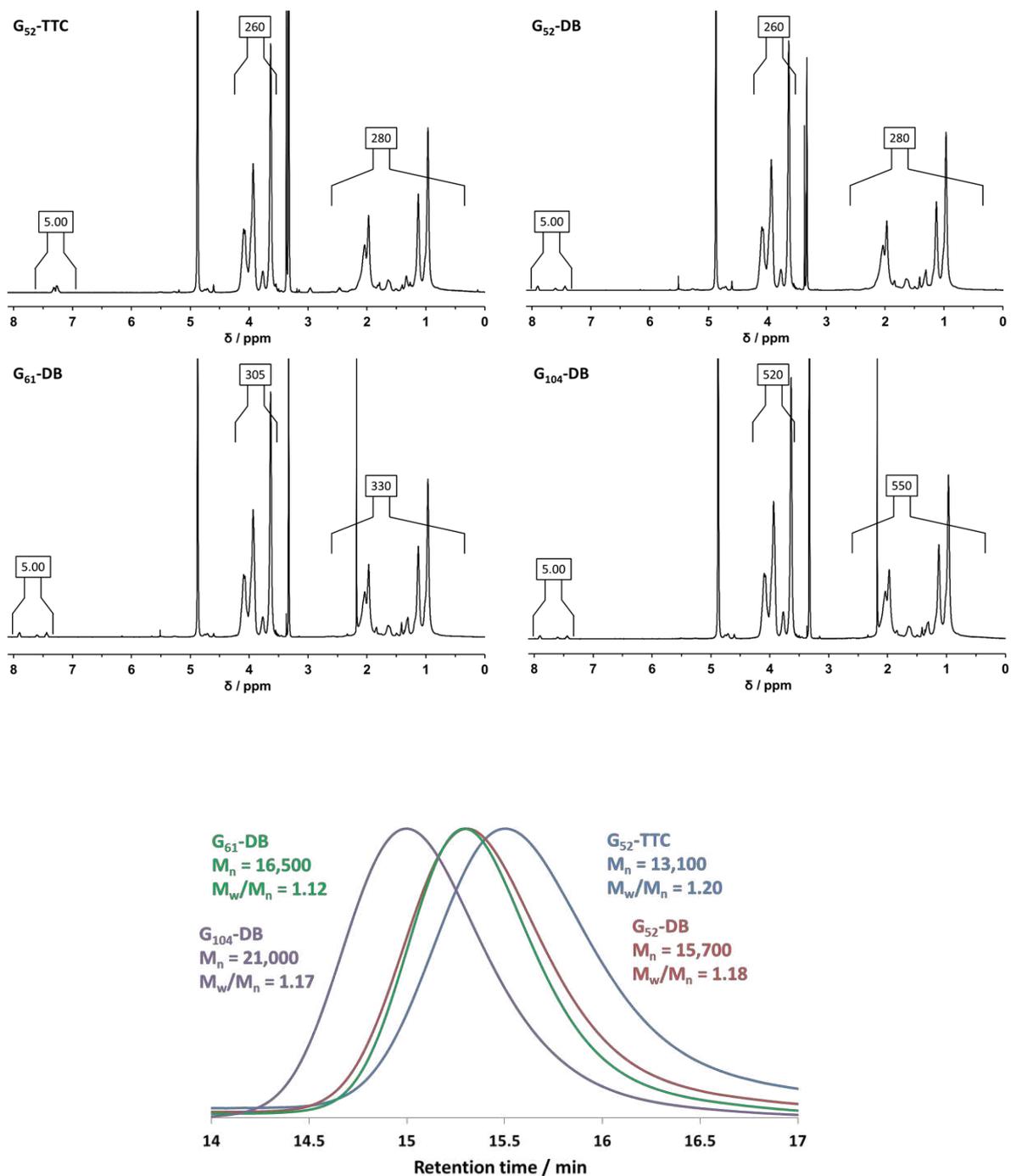


Figure S1. (a) Integrated ^1H NMR spectra and (b) DMF GPC chromatograms for G_{52} -TTC, G_{52} -DB, G_{61} -DB and G_{104} -DB macro-CTAs

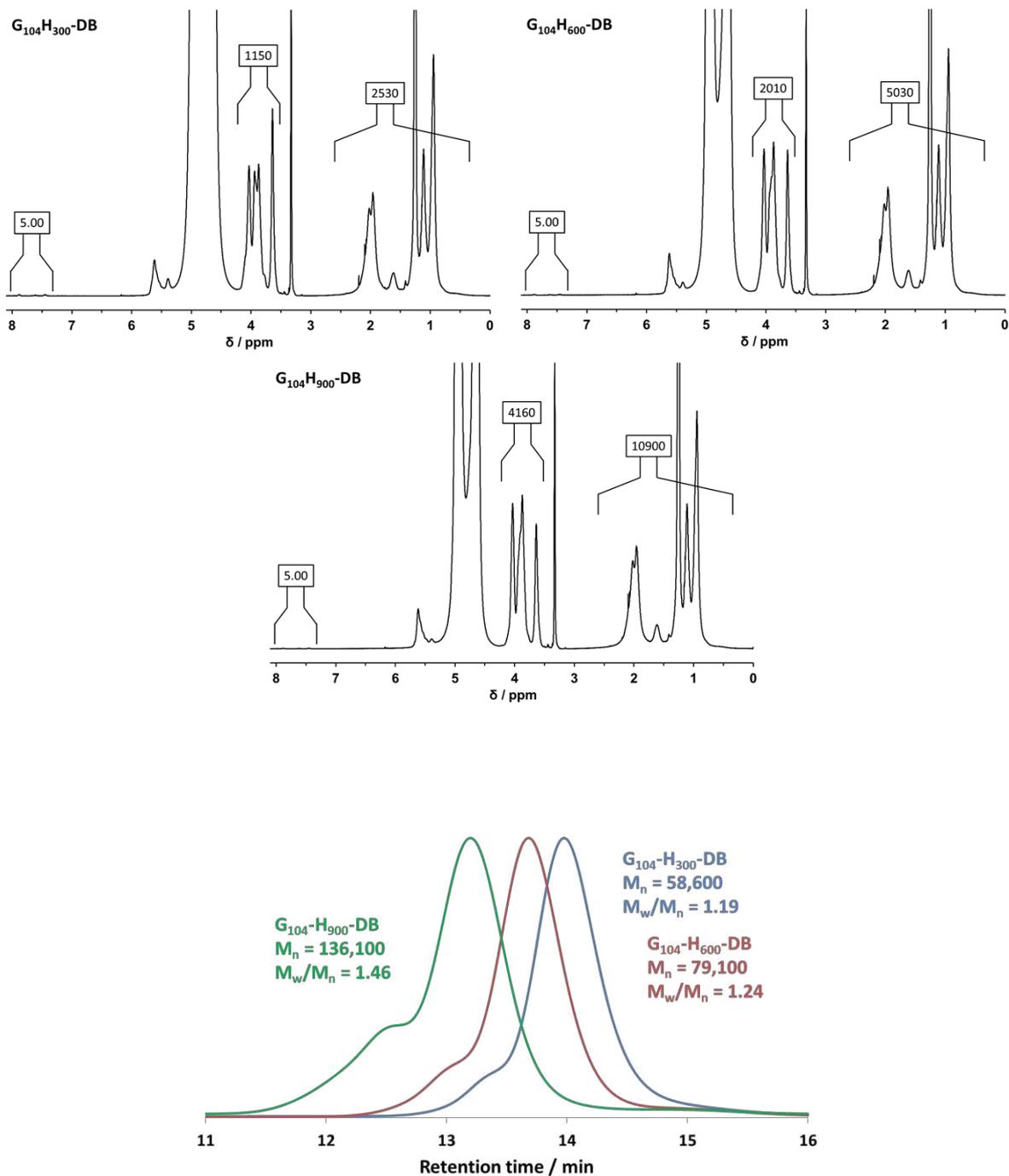


Figure S2. (a) Integrated ^1H NMR spectra and (b) DMF GPC chromatograms for $\text{G}_{104}\text{-H}_X$ ($X = 300, 600, 900$) diblock copolymer spheres

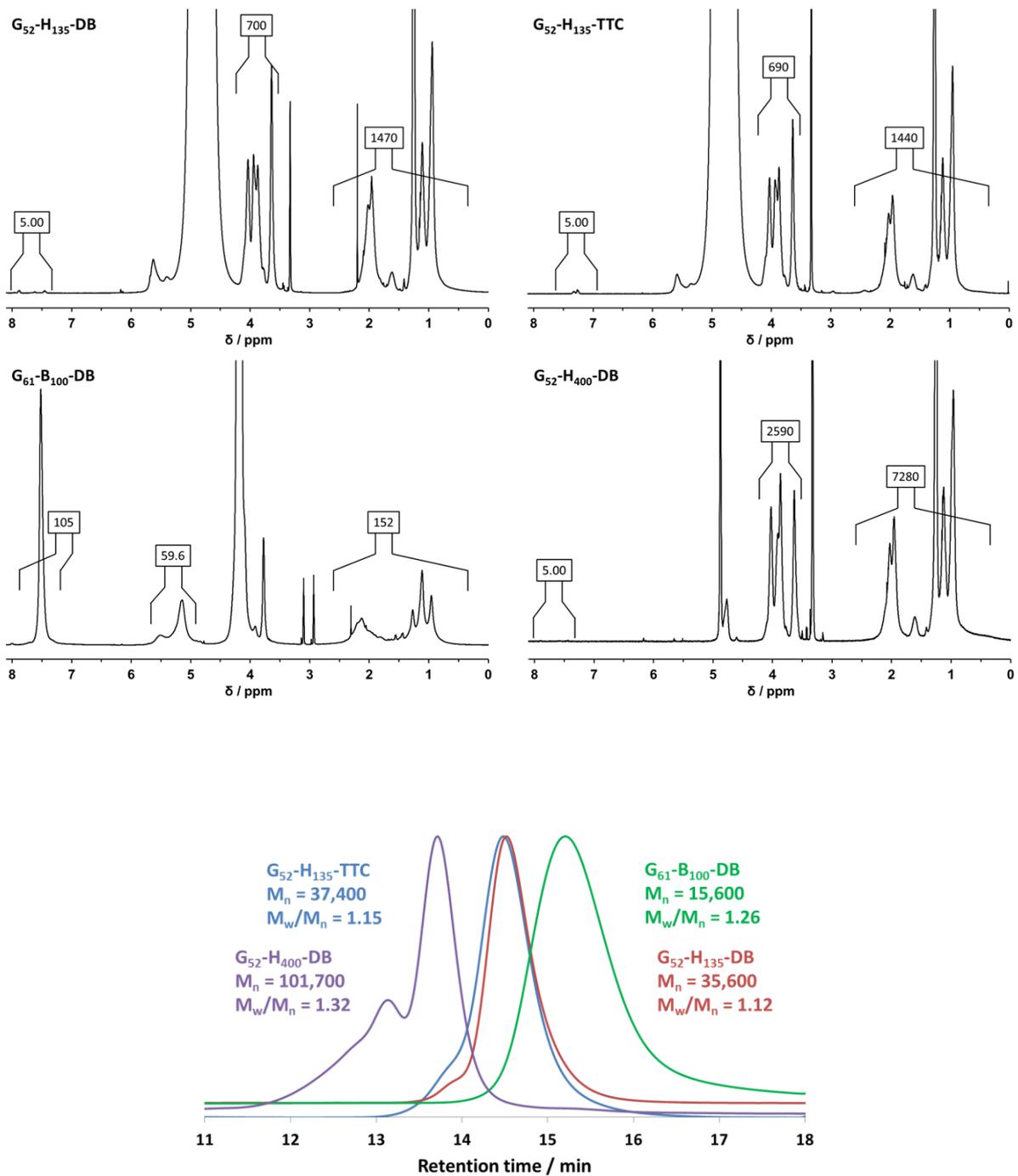


Figure S3. (a) Integrated ¹H NMR spectra and (b) DMF GPC chromatograms for G₅₂-H₁₃₅-TTC and G₅₂-H₁₃₅-DB worms, G₆₁-B₁₀₀ spheres and G₅₂-H₄₀₀ vesicles

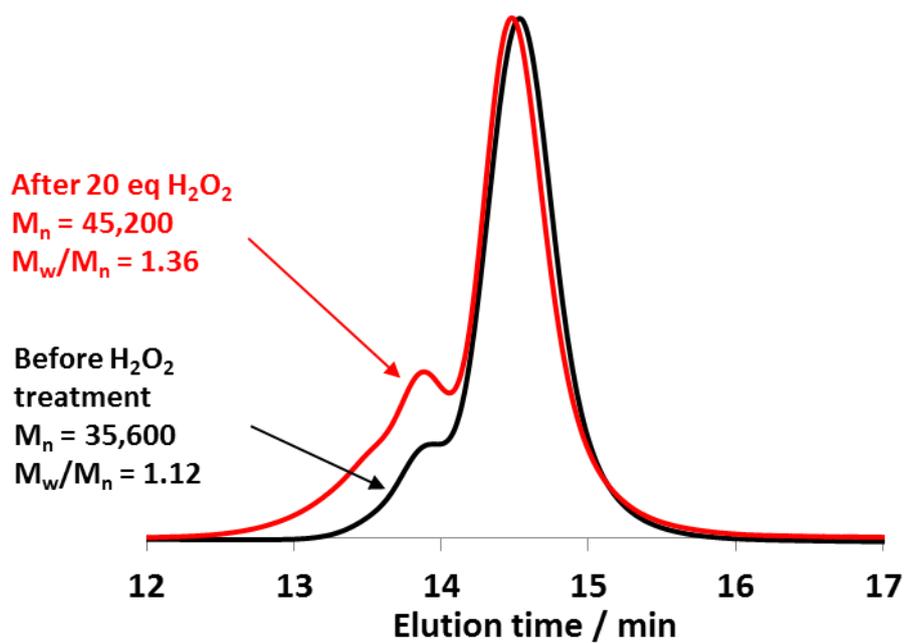


Figure S4. DMF GPC traces recorded for G₅₂-H₁₃₅-DB before (black) and after (red) H₂O₂ treatment. Conditions: H₂O₂/dithiobenzoate molar ratio = 20 for 3 h at 70 °C.

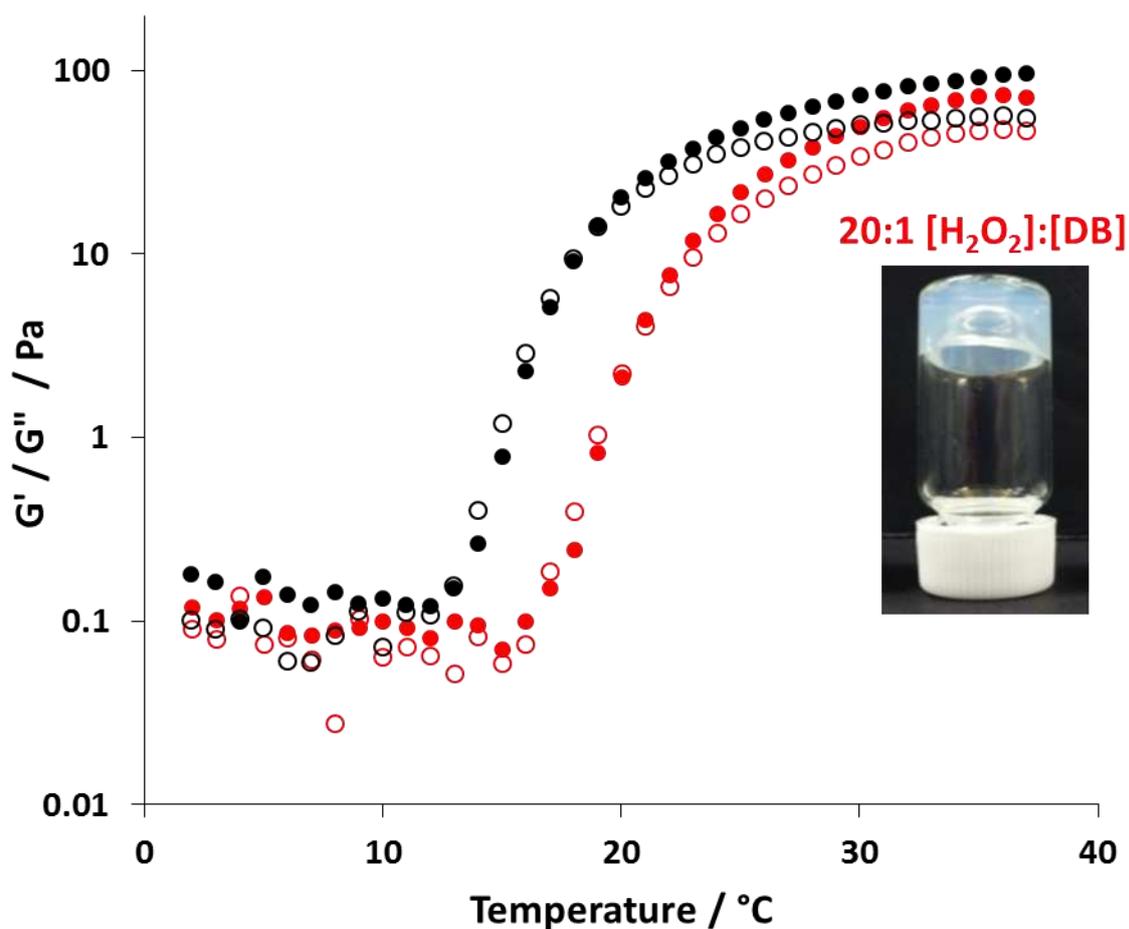


Figure S5. Gel storage modulus (G' , closed symbols) and loss modulus (G'' , open symbols) vs. temperature plots obtained for a G_{52} - H_{135} -DB worm gel before (black) and after (red) treatment with H_2O_2 . Conditions: $[\text{H}_2\text{O}_2]/[\text{DB}] = 20$ for 3 h at 70 $^{\circ}\text{C}$. Note that a weaker worm gel is obtained after H_2O_2 treatment ($G' = 71$ Pa, vs. $G' = 96$ Pa originally) and the critical gelation temperature (CGT) is raised from 19 $^{\circ}\text{C}$ to 21 $^{\circ}\text{C}$.

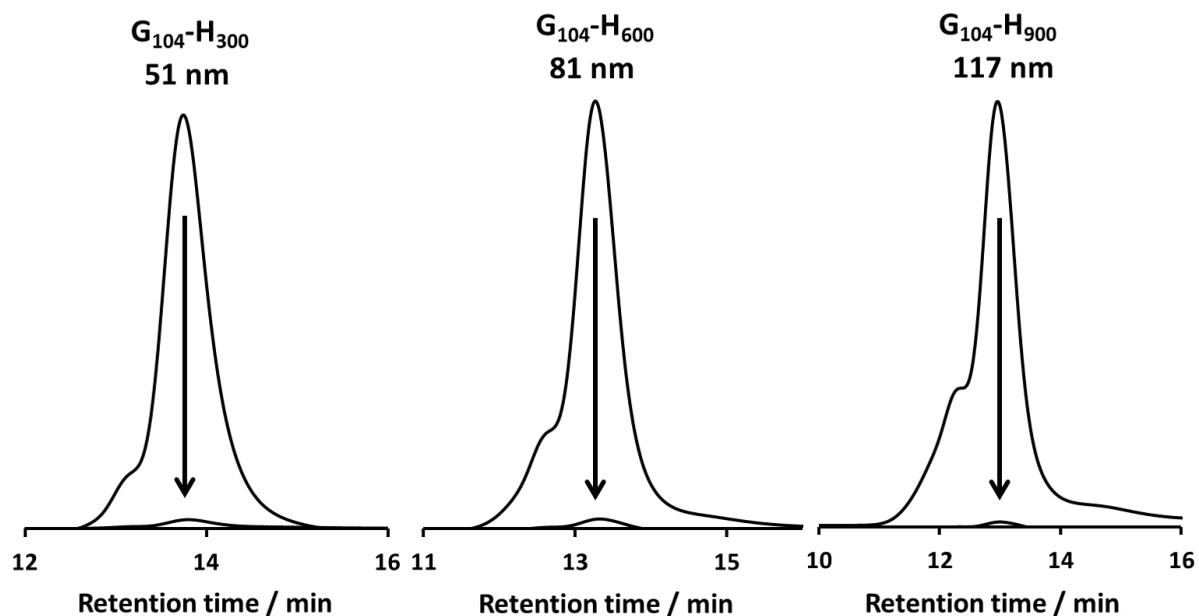


Figure S6. DMF GPC chromatograms (UV detector) of $G_{104}-H_X$ -DB spheres before end-group removal and after H_2O_2 treatment for 24 h (see arrows) using a H_2O_2 /dithiobenzoate molar ratio of 5.0 at 70 °C. In each case at least 98 % of the original end-groups are removed.

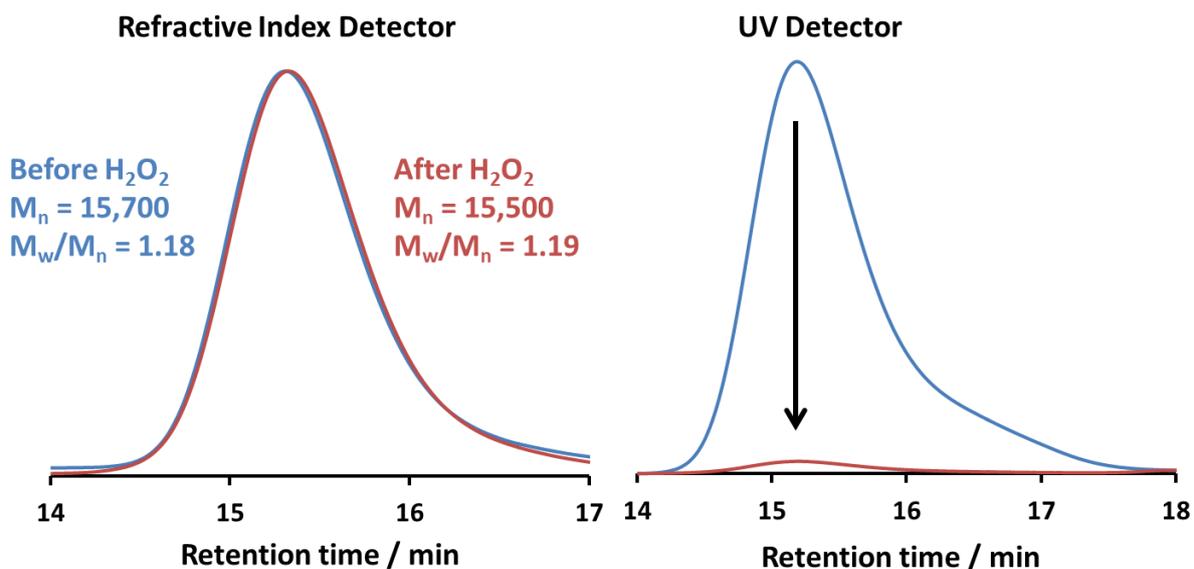


Figure S7. GPC chromatograms recorded for the G_{52} -DB macro-CTA before (blue traces) and after (red traces) end-group removal via H_2O_2 treatment using a H_2O_2 /dithiobenzoate molar ratio of 5.0 at 70 °C: (a) minimal change in the molecular weight distribution as judged using a refractive index detector and (b) 97 % disappearance in the 309 nm signal associated with the RAFT end-group using the UV detector.

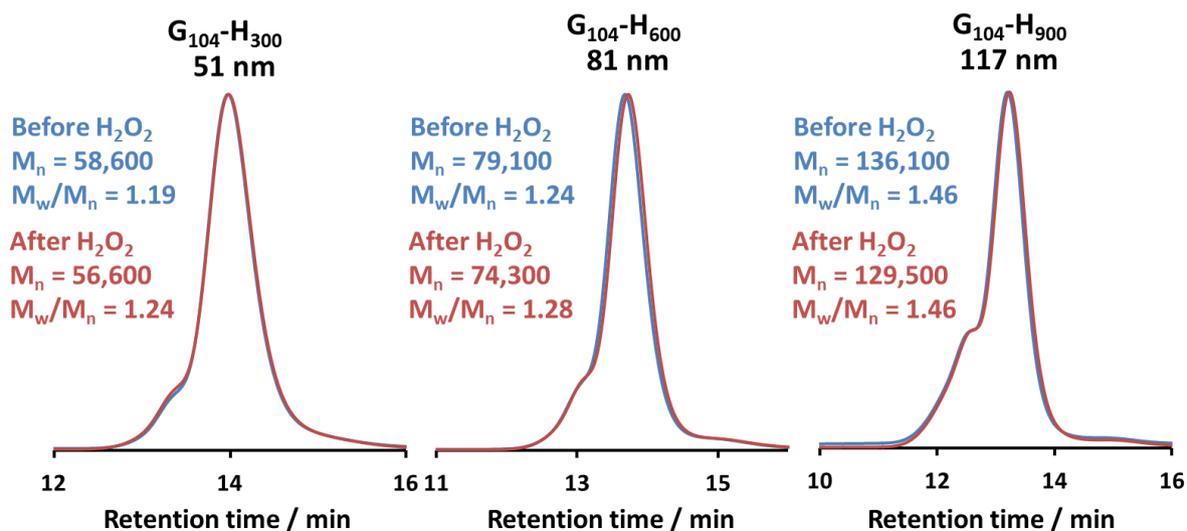


Figure S8. DMF GPC chromatograms (refractive index detector) of $G_{104}-H_X-DB$ spheres before end-group removal and after H_2O_2 treatment for 7 h using a H_2O_2 /dithiobenzoate molar ratio of 5.0 at 70 °C. Note that there is minimal change in the molecular weight distributions under these optimized end-group removal conditions.