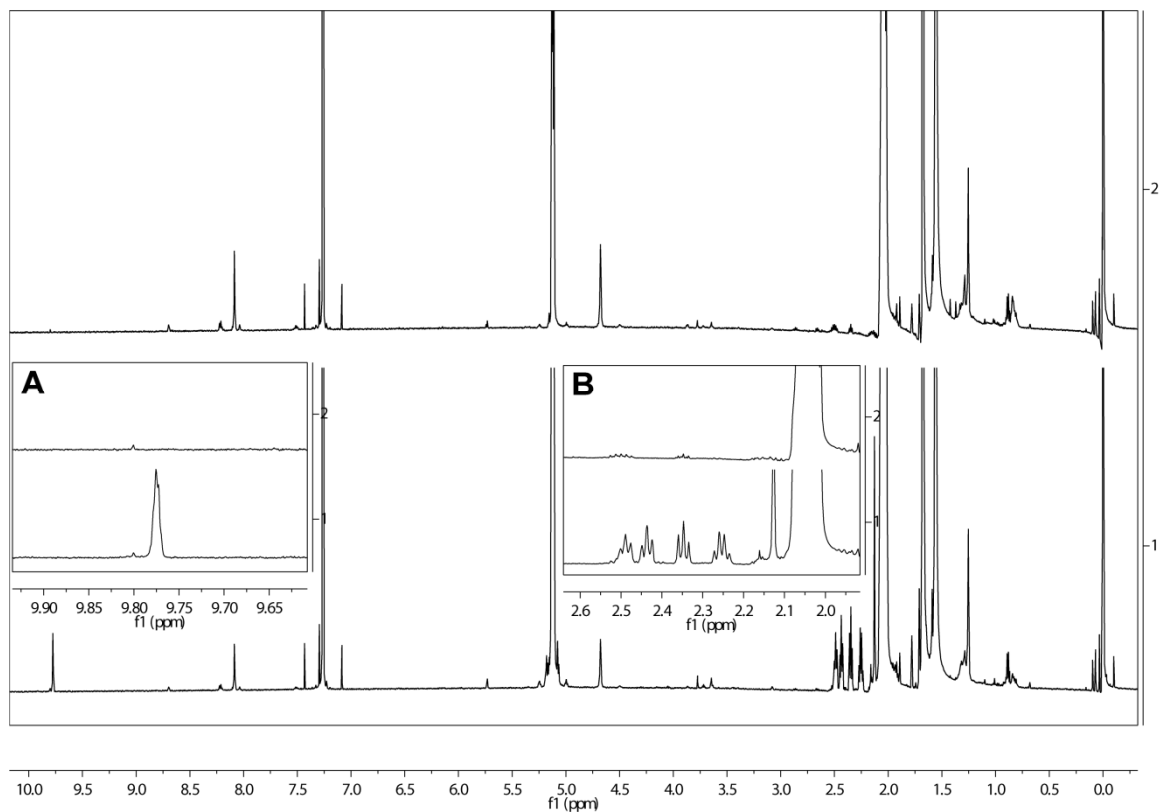1   **SUPPLEMENTAL MATERIAL**

2

3   FIG. S1. Complete ^{1}H-NMR spectrum of the second fraction of Lcp1$_{VH2}$–mediated rubber

4   cleavage products (1) in comparison with the spectrum of the negative control (2; latex

5   fraction treated with heat inactivated Lcp1$_{VH2}$). Differences between the spectra are

6   highlighted in boxes A (9.65 ppm – 9.90 ppm) and B (2.0 ppm – 2.6 ppm).

7

8   Table S1. Calculation of the average chain length:

9   **Fraction 1:**

10   a)   I(4-Me + 8-Me) / 3   => 53.3 / 3 = 17.8

11   b)   I(6 + 7) + I(3) + I(10) / 4   => 67.6 + 2.1 + 1.9 / 4 = 17.9

12   c)   I(5) + I(9) / 1   => 17.0 +1.1 / 1 = 18.1

13   Giving an average of n = 17.9

14   **Fraction 2:**

15   d)   I(4-Me + 8-Me) / 3   => 29.7 / 3 = 9.9

16   e)   I(6 + 7) + I(3) + I(10) / 4   => 35.4 + 2.3 + 2.0 / 4 = 9.9

17   f)   I(5) + I(9) / 1   => 9.0 +1.1 / 1 = 10.1

18   Giving an average of n = 10.0