SUPPLEMENTARY INFORMATION

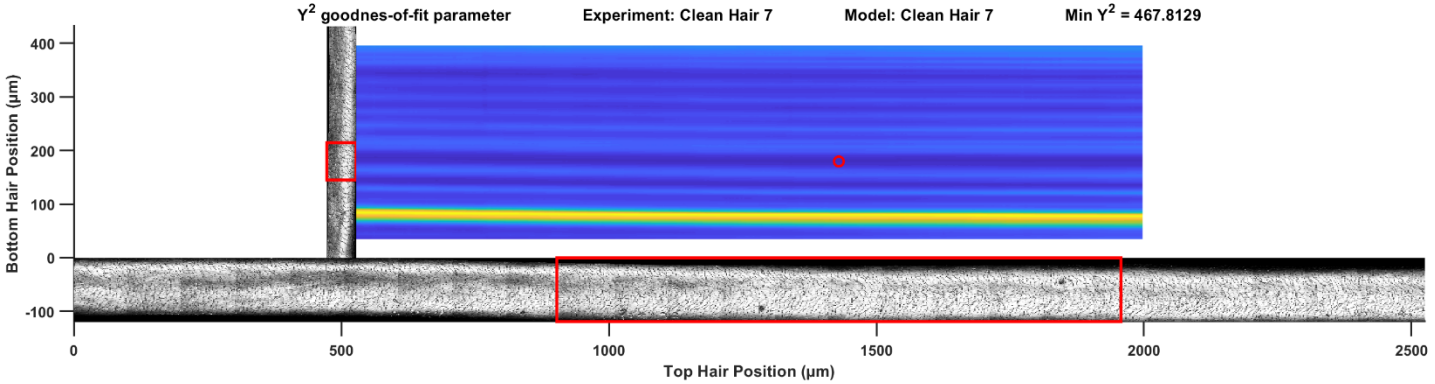

Figure S1. Goodness of fit map between measured adhesion forces from Clean Hair 7 and surface profilometry model from Clean Hair 7. Corresponds to the histograms in Main Text Figure 12A. Y^2 increases from blue to yellow. Approximately 400 µm of the probe hair (bottom hair) and approximate 2.5 mm of the fixed hair (top hair) are shown and are aligned to scale with the vertical and horizontal axes, respectively. The Y^2 goodness-of-fit parameter is calculated for the overall adhesion force distribution modeled using an overall translation of 1 mm of the top hair and 15 µm of the bottom hair centered at each point in the goodness-of-fit map. The open red circle on the goodness-of-fit map indicates the minimum Y^2 parameter which was calculated from the segments of hair within the red boxes.

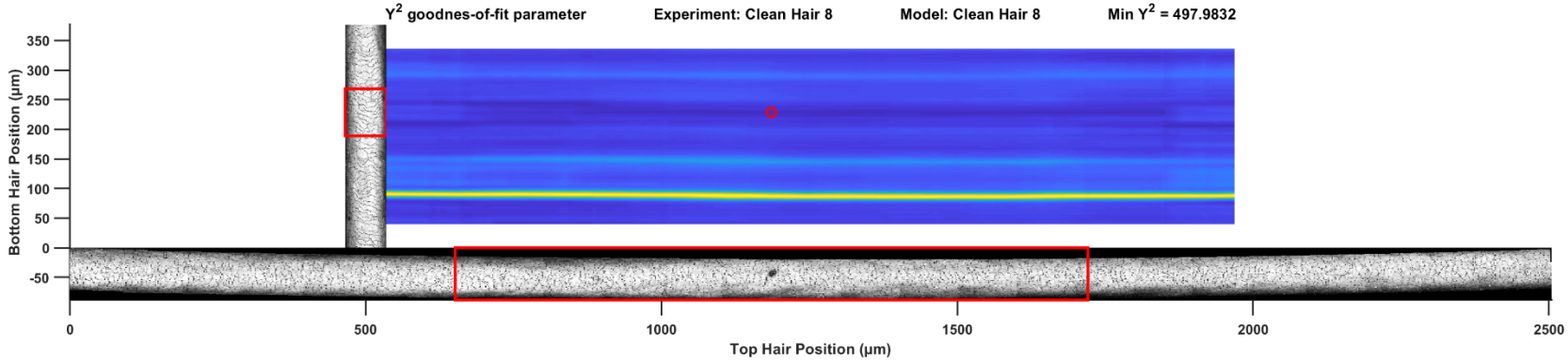

Figure S2. Goodness of fit map as in Figure S1 but for measured adhesion forces from Clean Hair 8 and surface profilometry model from Clean Hair 8. Corresponds to the histograms in Main Text Figure 12B. Translation distance used for the top hair segment in the model was 10 µm.

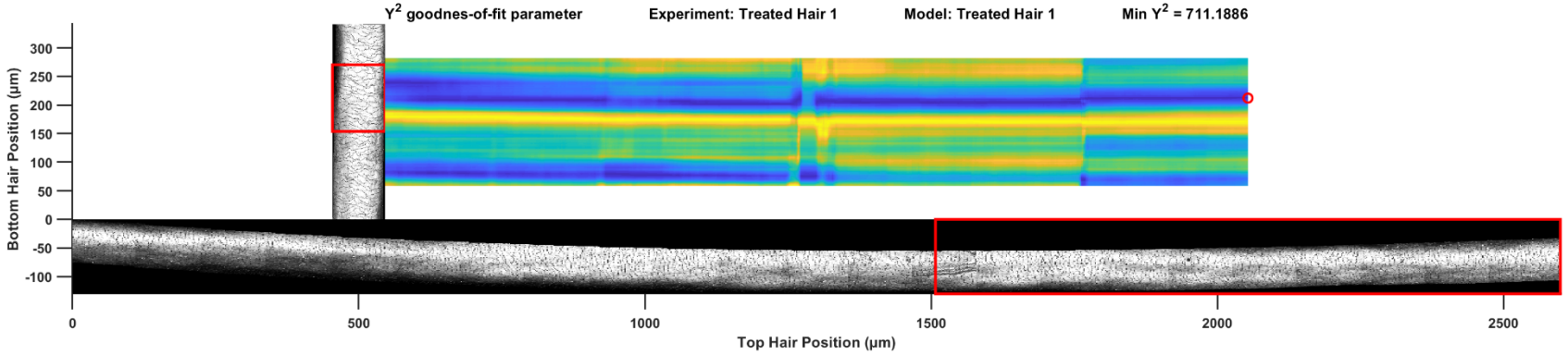

Figure S3. Goodness of fit map as in SI Figure S1 but for measured adhesion forces from Treated Hair 1 and surface profilometry model from Treated Hair 1. Corresponds to the histograms in Main Text Figure 12C. Translation distance used for the top hair segment in the model was 25 µm.

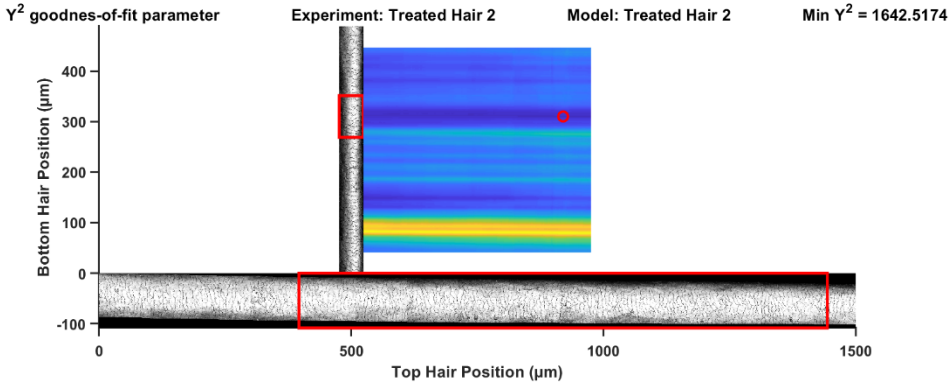

Figure S4. Goodness of fit map as in Figure S1 but for measured adhesion forces from Treated Hair 2 and surface profilometry model from Treated Hair 2. Corresponds to the histograms in Main Text Figure 12D. Translation distance used for the top hair segment in the model was 35 µm.

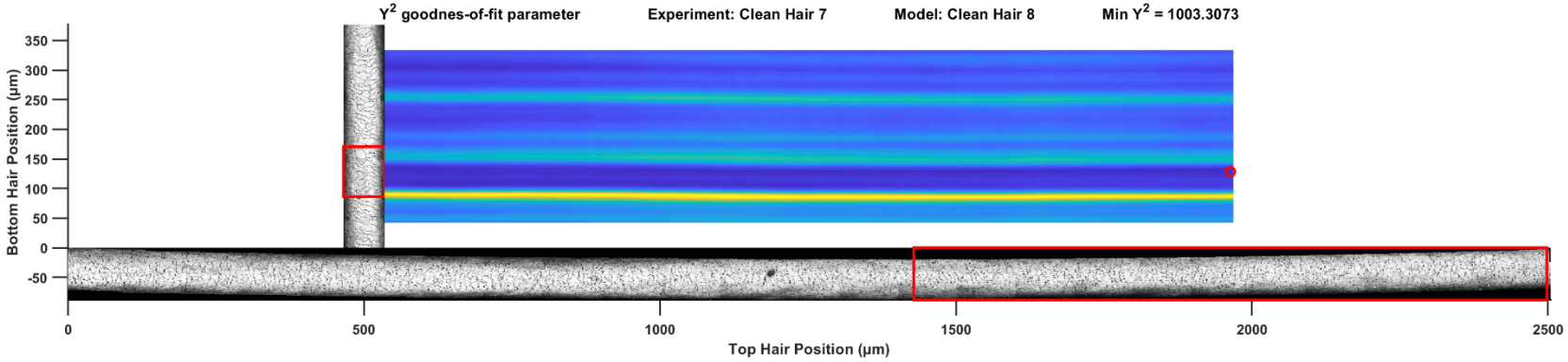

Figure S5. Goodness of fit map as in Figure S1 but for measured adhesion forces from Clean Hair 7 and surface profilometry model from Clean Hair 8. Corresponds to the histograms in Main Text Figure 12E. Translation distance used for the top hair segment in the model was 10 µm.

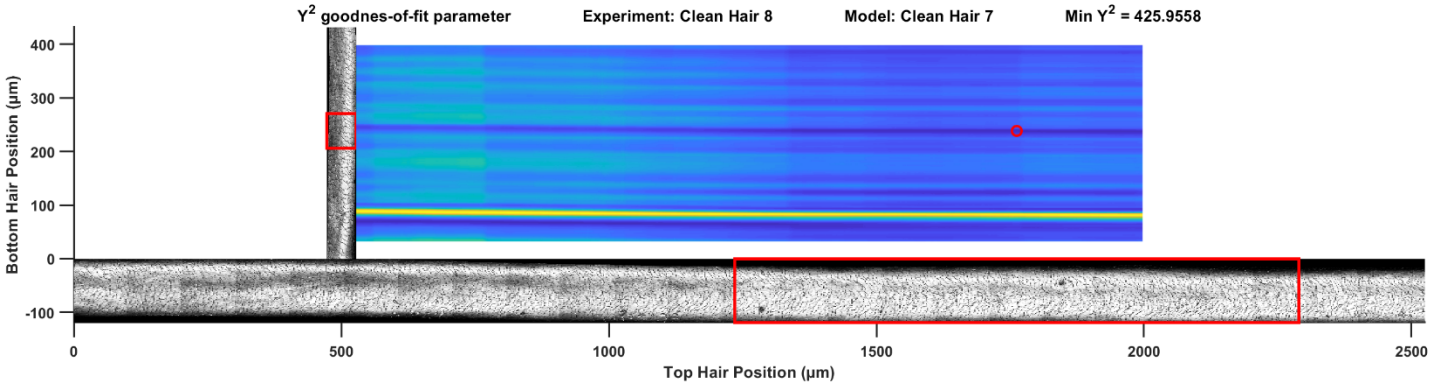

Figure S6. Goodness of fit map as in Figure S1 but for measured adhesion forces from Clean Hair 8 and surface profilometry model from Clean Hair 7. Corresponds to the histograms in Main Text Figure 12F. Translation distance used for the top hair segment in the model was 15 µm.

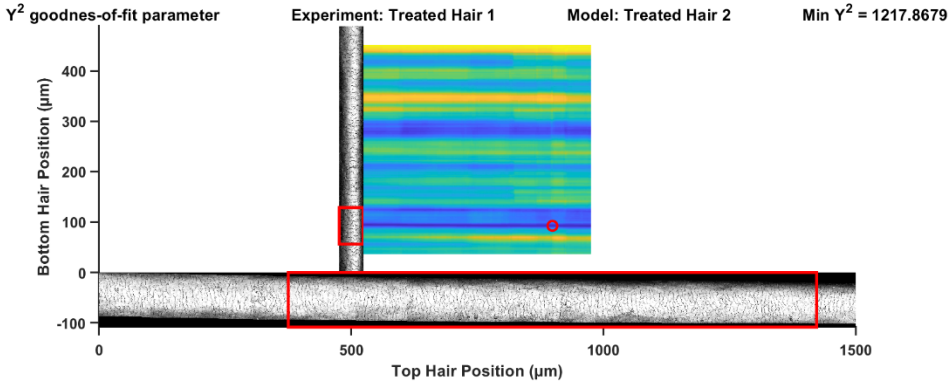

Figure S7. Goodness of fit map as in Figure S1 but for measured adhesion forces from Treated Hair 1 and surface profilometry model from Treated Hair 2. Corresponds to the histograms in Main Text Figure 12G. Translation distance used for the top hair segment in the model was 35 µm.

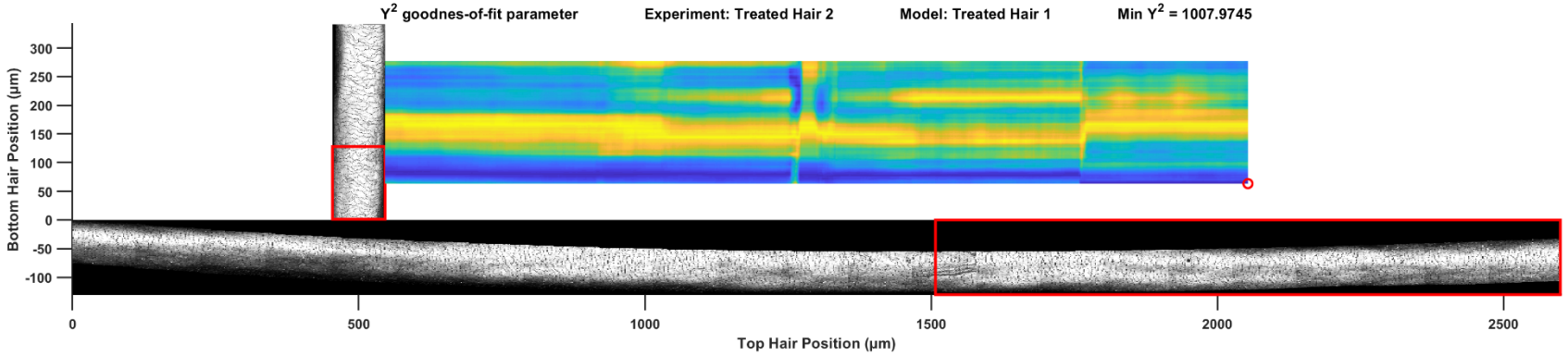

Figure S8. Goodness of fit map as in Figure S1 but for measured adhesion forces from Treated Hair 2 and surface profilometry model from Treated Hair 1. Corresponds to the histograms in Main Text Figure 12H. Translation distance used for the top hair segment in the model was 25 µm.

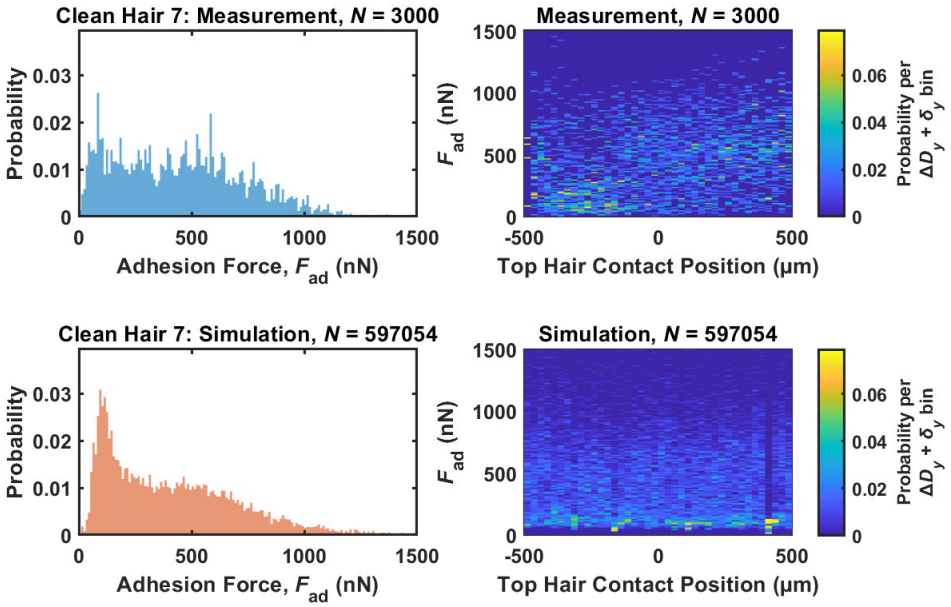

Figure S9. Overall (left) and spatially resolved (right) adhesion force distributions corresponding to the measured adhesion force from Clean Hair 7 (top) and the modeled forces for Clean Hair 7 from its surface topography (bottom). The modeled forces use the sections of the top and bottom hair segments boxed in red in **Figure S1** corresponding to the minimum Y^2 parameter. Top hair contact locations for both measured and modeled data are relative to the center of the total interval.

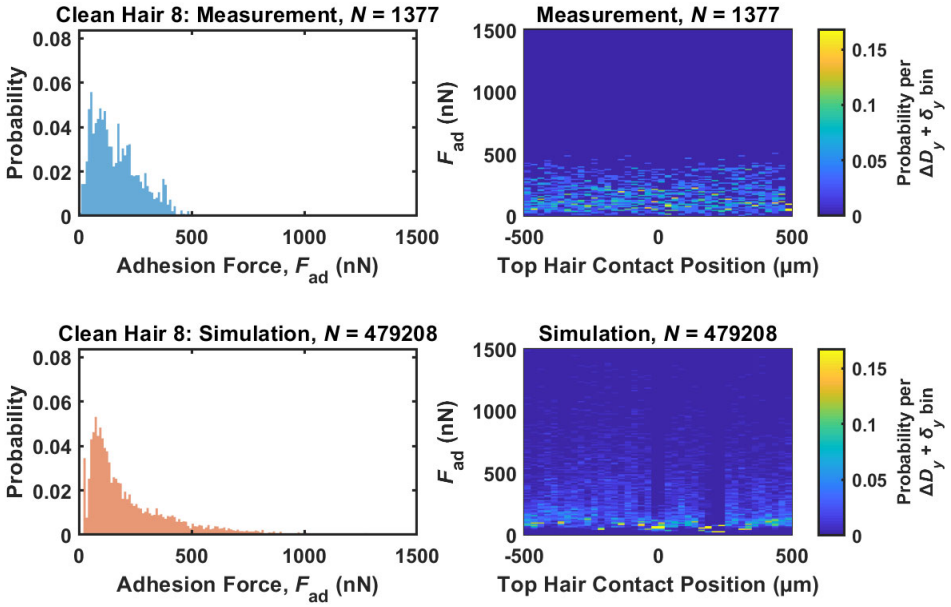

Figure S10. Adhesion distributions as in **Figure S9** but for measurements from Clean Hair 8 and modeled forces from Clean Hair 8. Modeled distributions correspond to the red boxed regions in **Figure S2**.

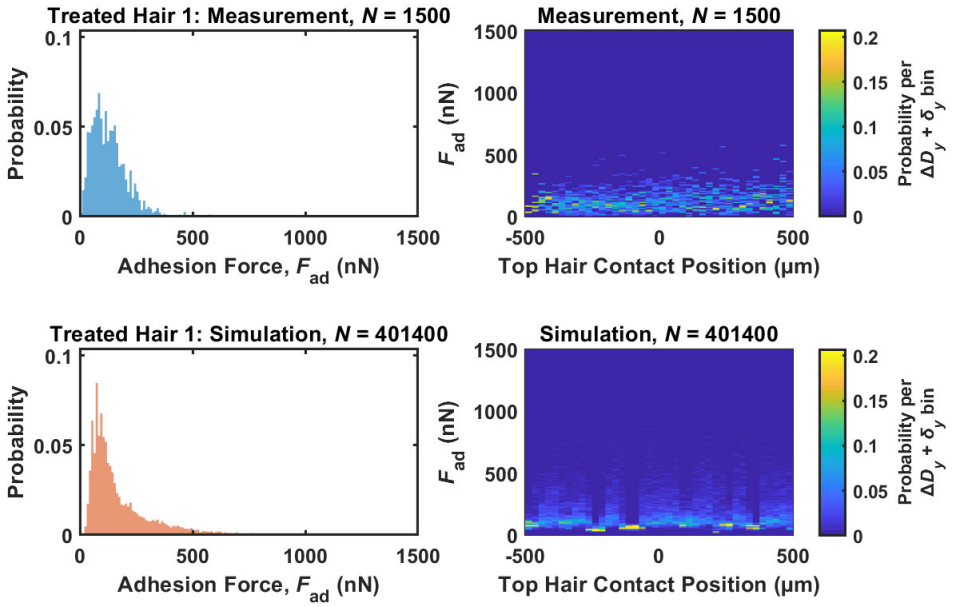

Figure S11. Adhesion distributions as in **Figure S9** but for measurements from Treated Hair 1 and modeled forces from Treated Hair 1. Modeled distributions correspond to the red boxed regions in **Figure S3**.

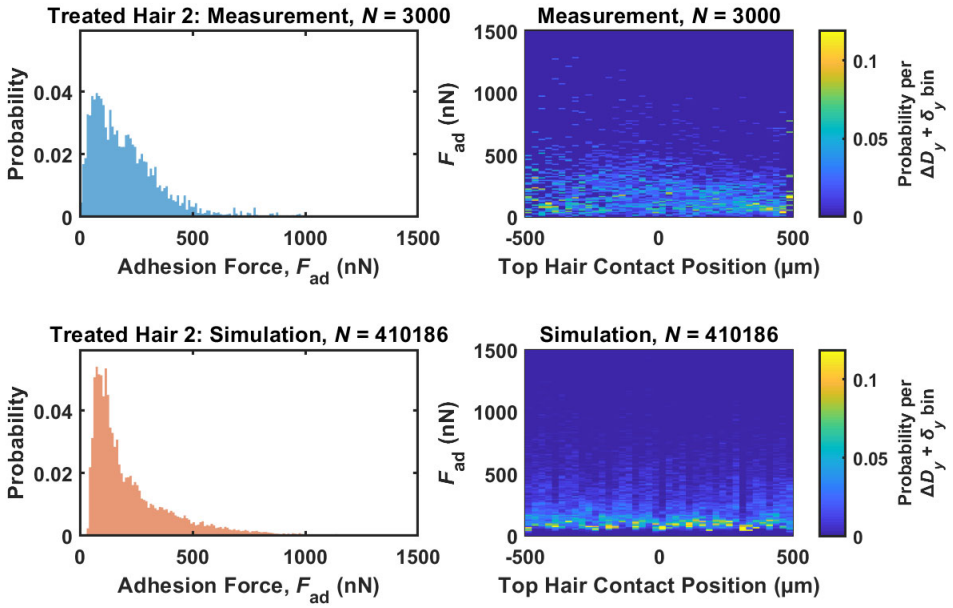

Figure S12. Adhesion distributions as in **Figure S9** but for measurements from Treated Hair 2 and modeled forces from Treated Hair 2. Modeled distributions correspond to the red boxed regions in **Figure S4**.

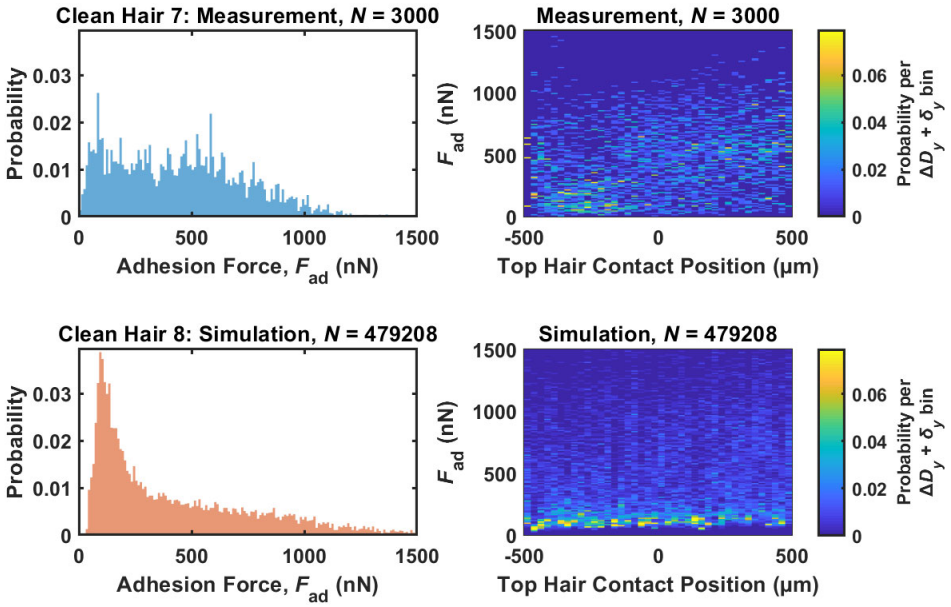

Figure S13. Adhesion distributions as in **Figure S9** but for measurements from Clean Hair 7 and modeled forces from Clean Hair 8. Modeled distributions correspond to the red boxed regions in **Figure S5**.

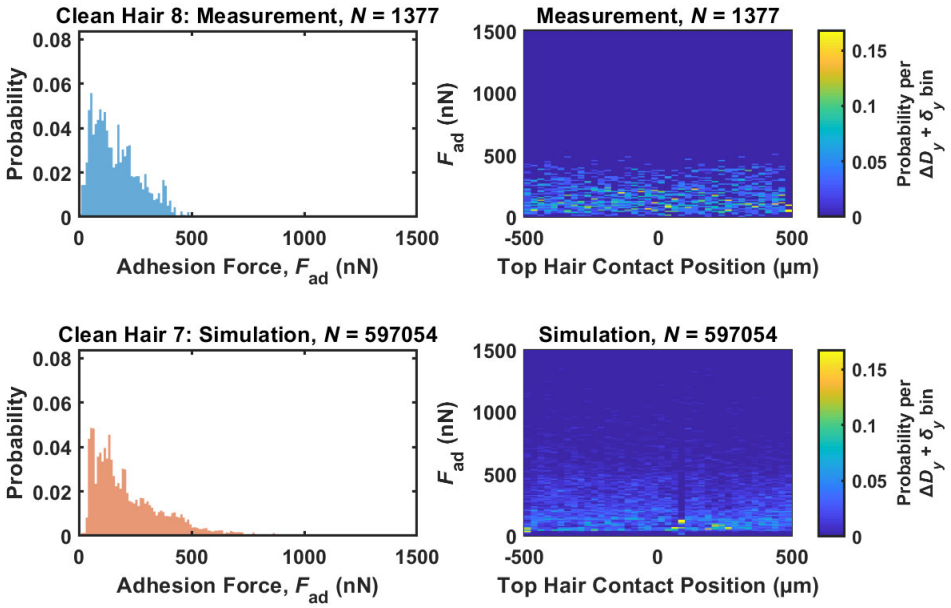

Figure S14. Adhesion distributions as in **Figure S9** but for measurements from Clean Hair 8 and modeled forces from Clean Hair 7. Modeled distributions correspond to the red boxed regions in **Figure S6**.

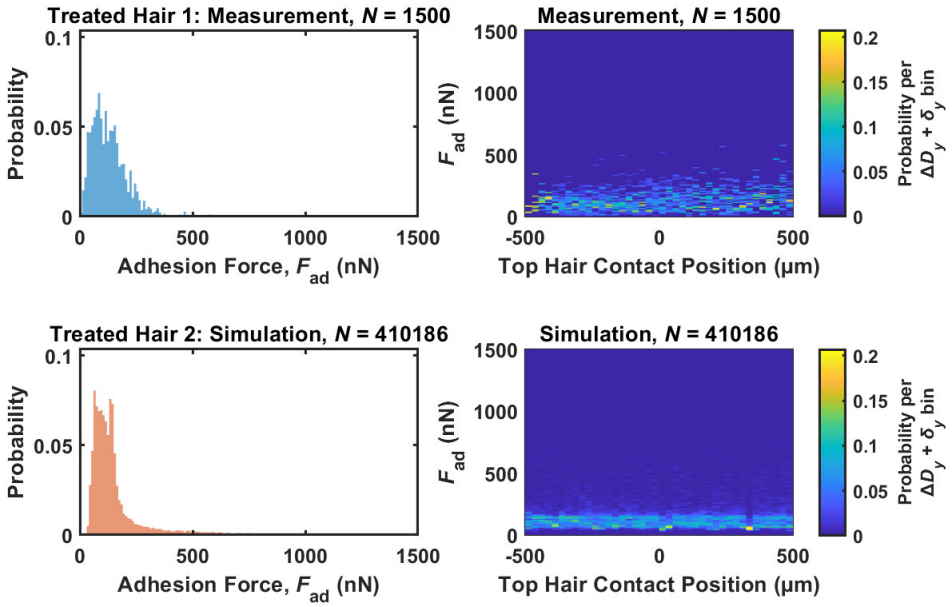

Figure S15. Adhesion distributions as in **Figure S9** but for measurements from Treated Hair 1 and modeled forces from Treated Hair 2. Modeled distributions correspond to the red boxed regions in **Figure S7**.

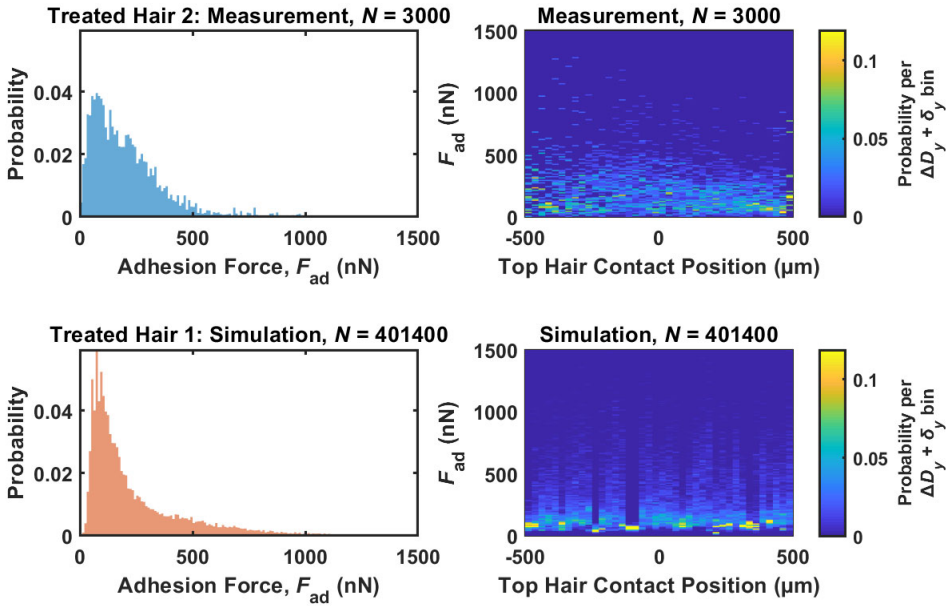

Figure S16. Adhesion distributions as in **Figure S9** but for measurements from Treated Hair 2 and modeled forces from Treated Hair 1. Modeled distributions correspond to the red boxed regions in **Figure S8**.