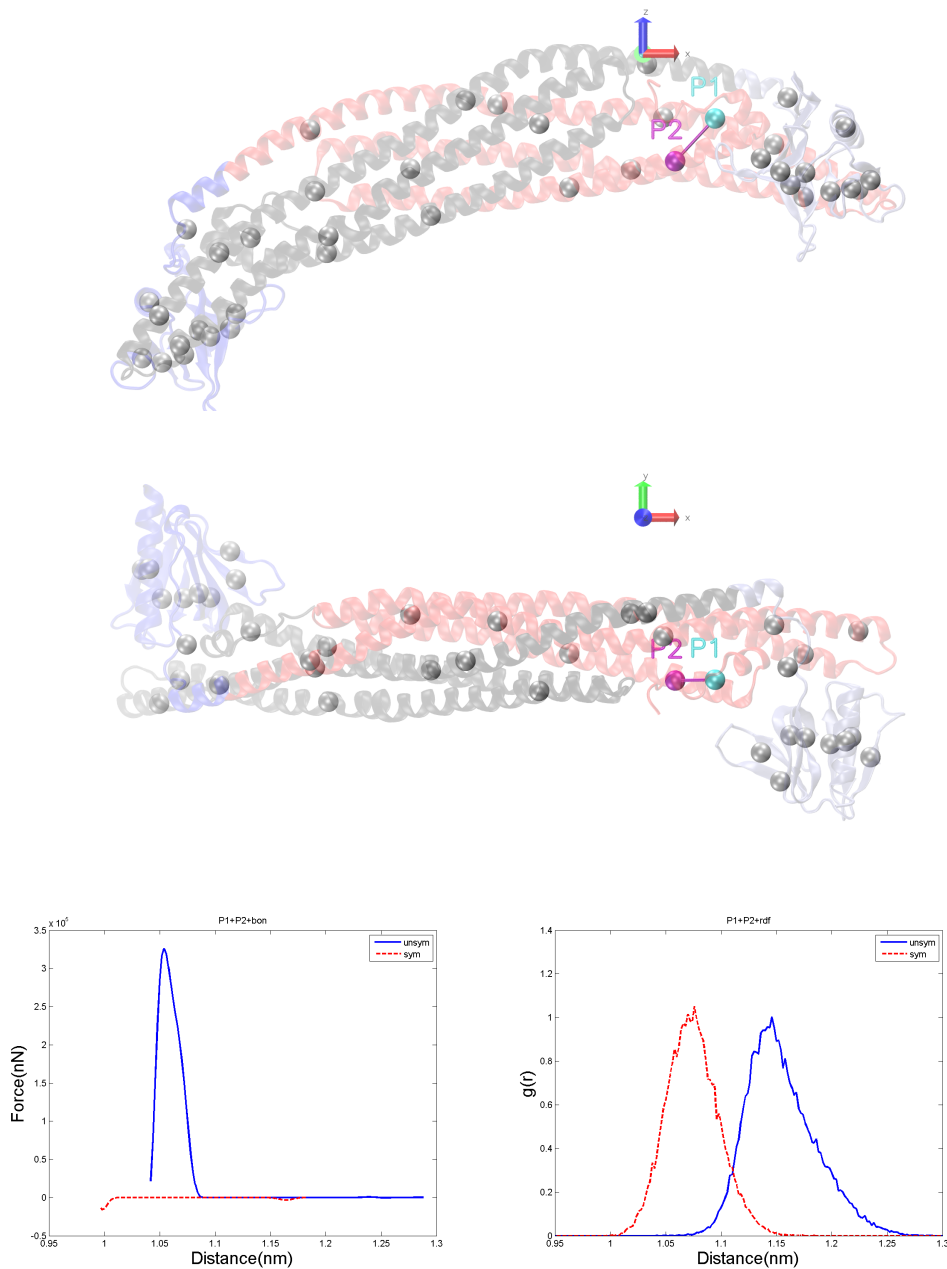
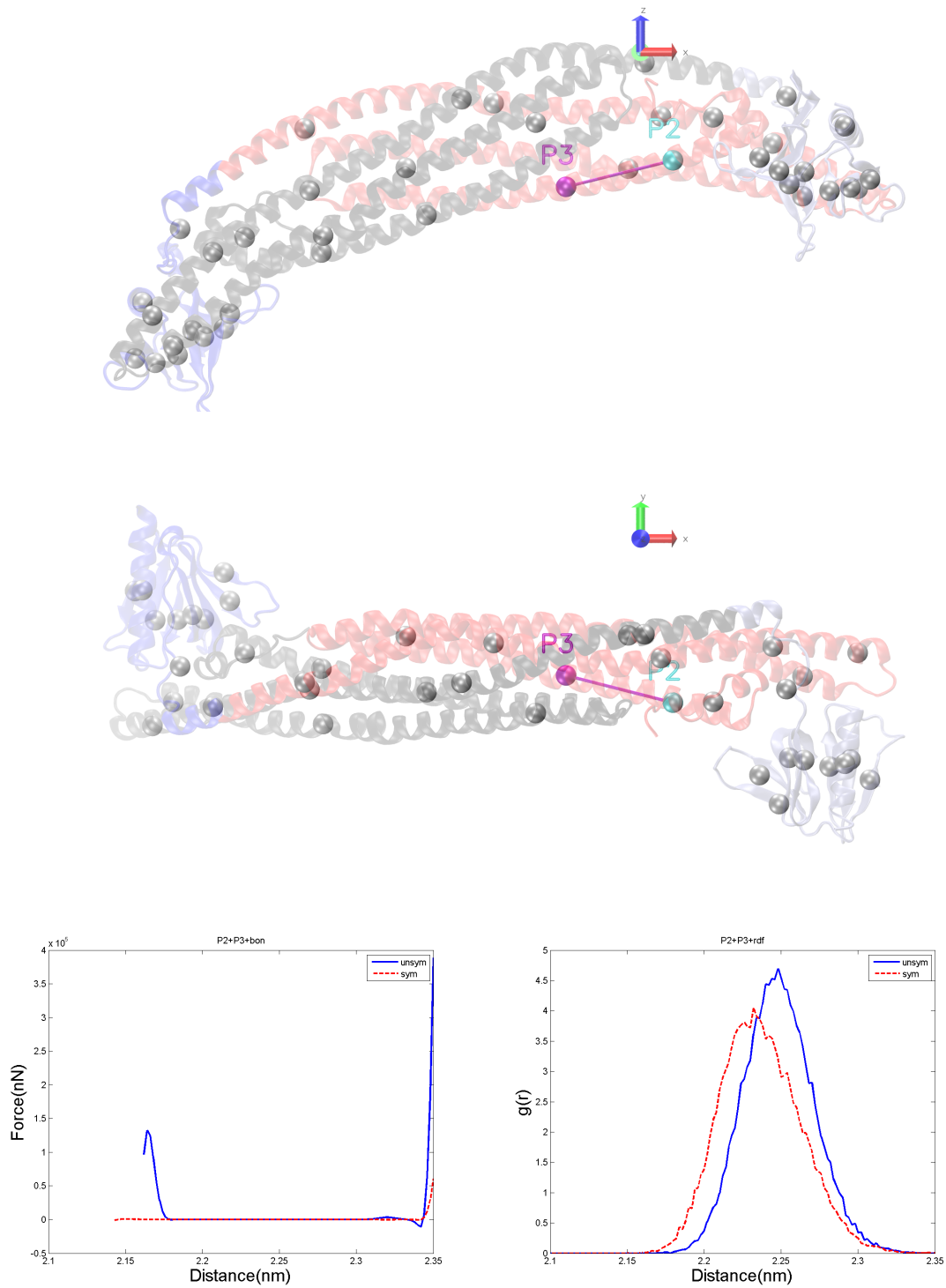


### Force-matching results for bonded force in BAR-PH

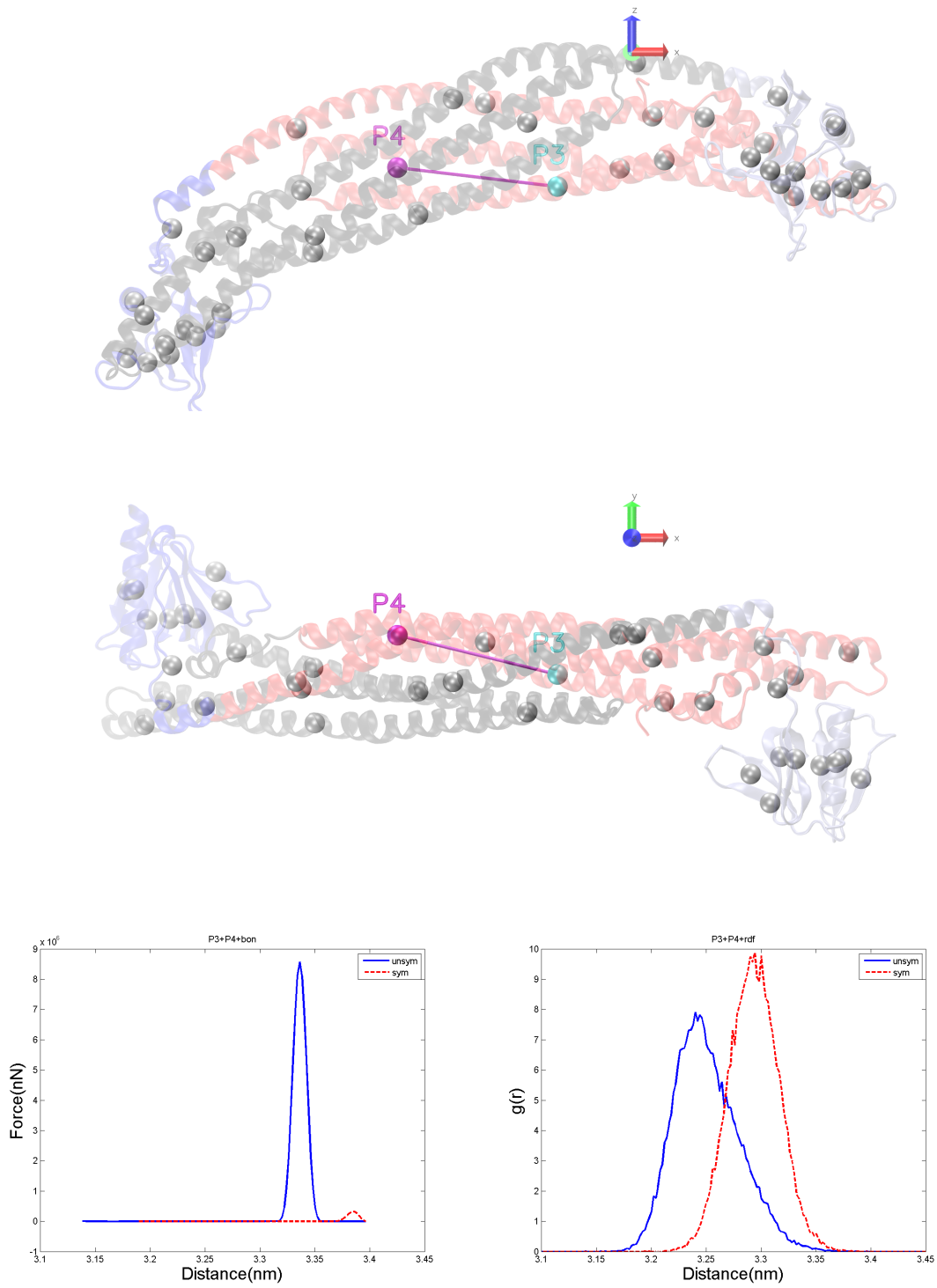
Followings are force-matching results for bonded force in BAR-PH which refers to interactions between  $CG - site_n$  and  $CG - site_{n+1}$ , namely  $P(n)$  and  $P(n+1)$ . For each pair - top and middle panels show the positions in the CG model (top and side view); force-matching results are shown in the lower left panel, in which the output bin is of 0.02nm; Radial distribution functions of the pair are shown in the lower right panel with the same output bin with the FM results.



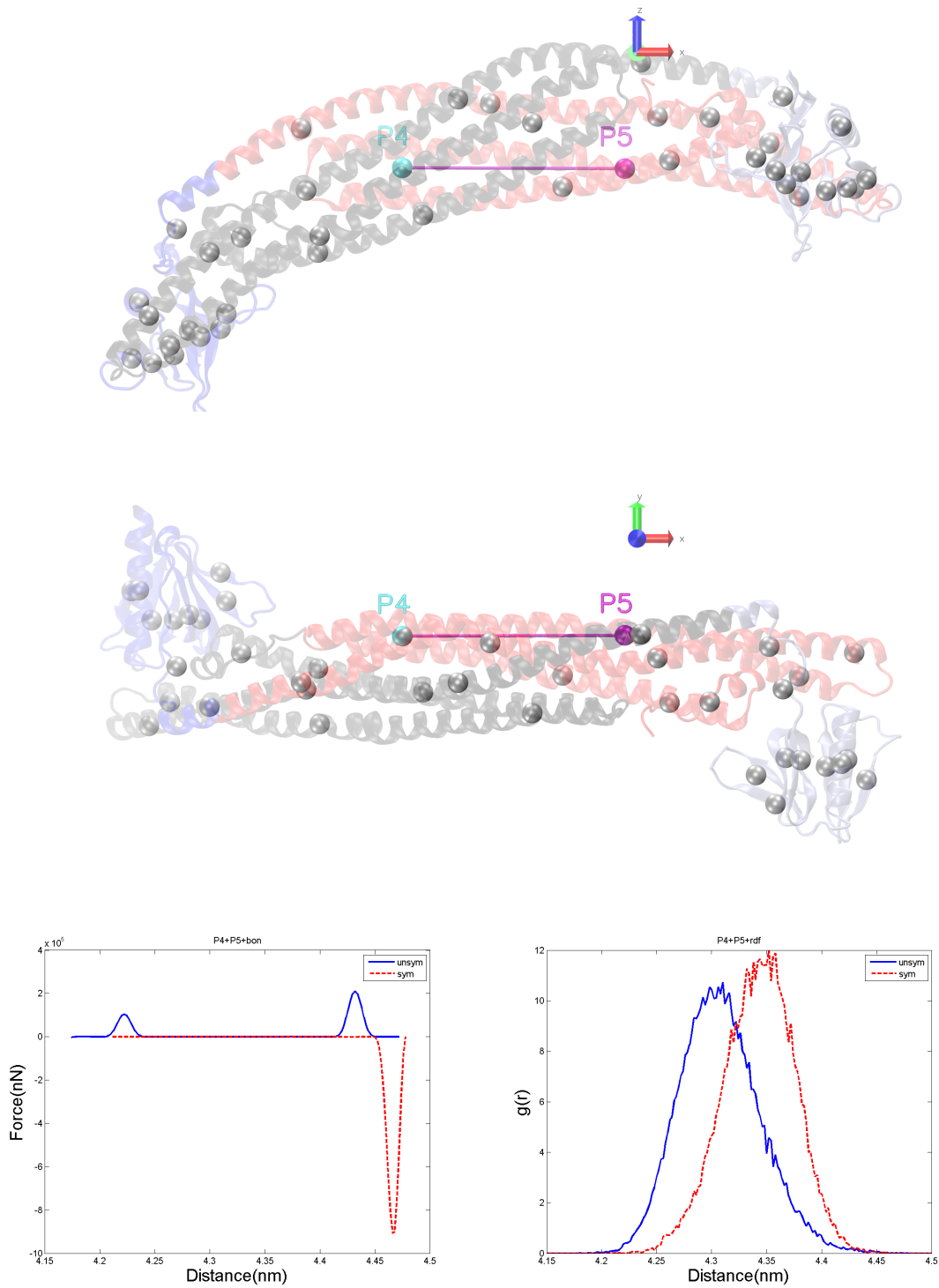
**Figure 1. Force-matching results of P1 and P2 with positions in CG model and RDF for both symmetrical and unsymmetrical models.**



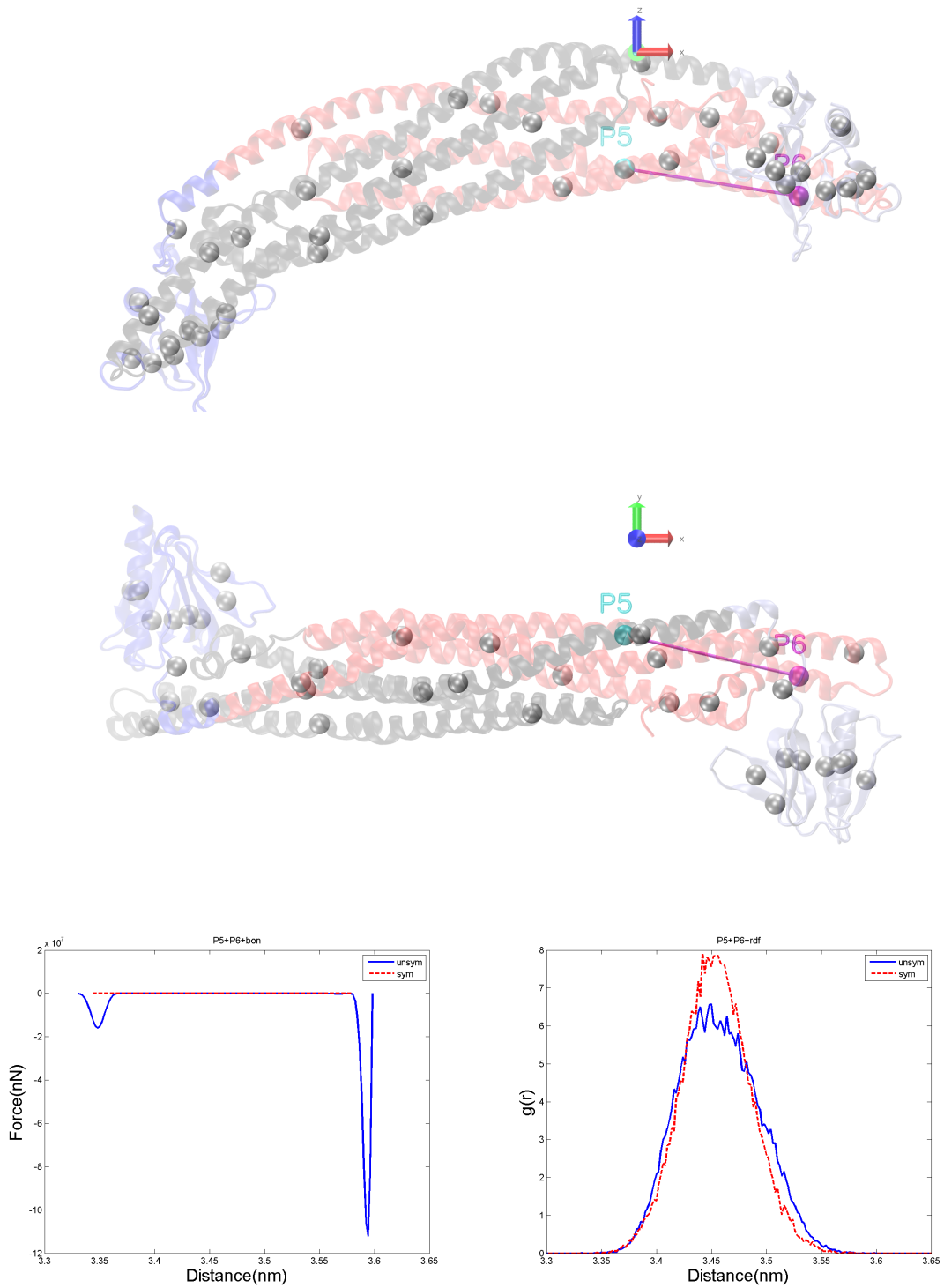
**Figure 2. Force-matching results of P2+P3 with positions in CG model and RDF.**



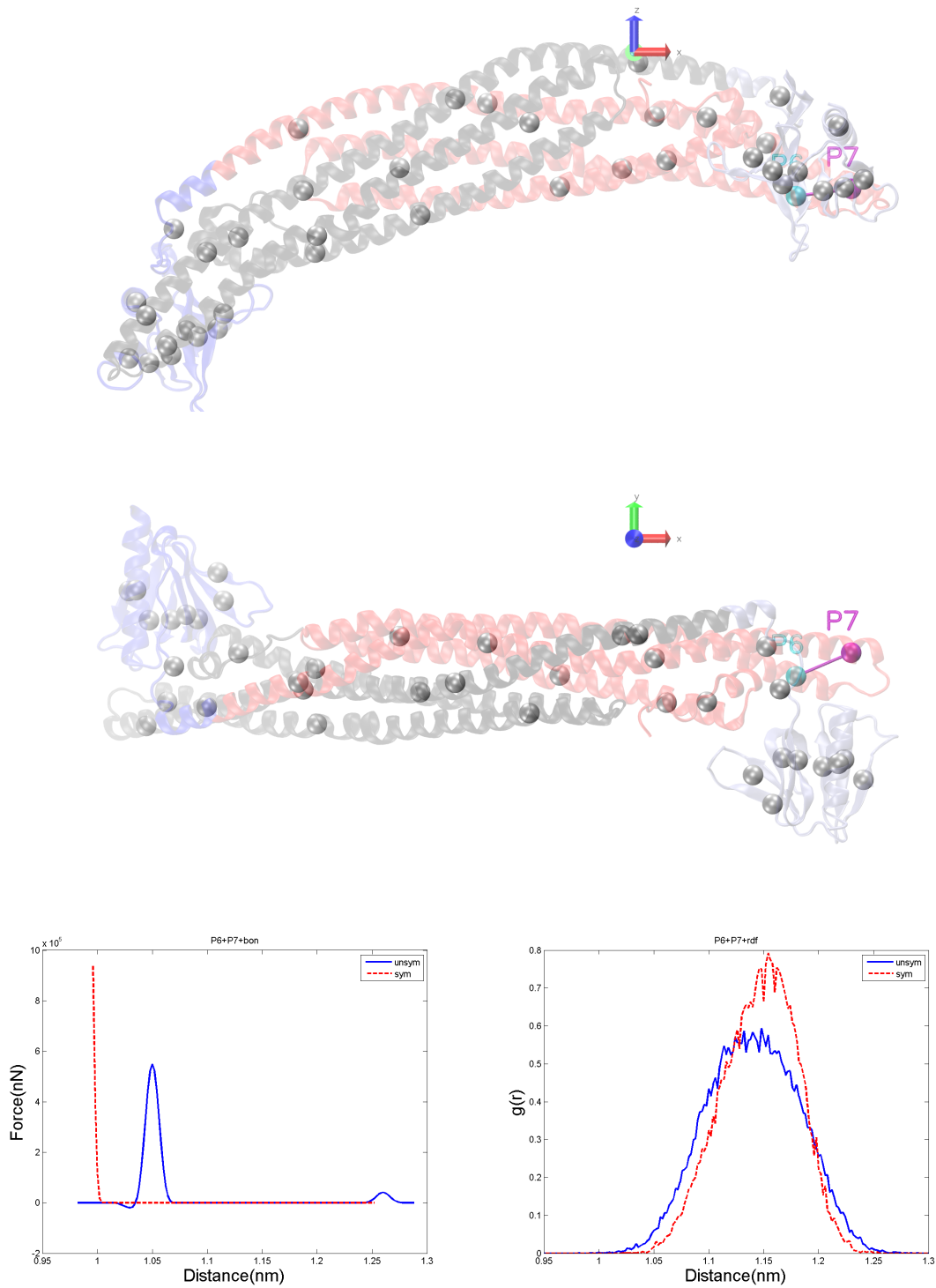
**Figure 3. Force-matching results of P3+P4 with positions in CG model and RDF.**



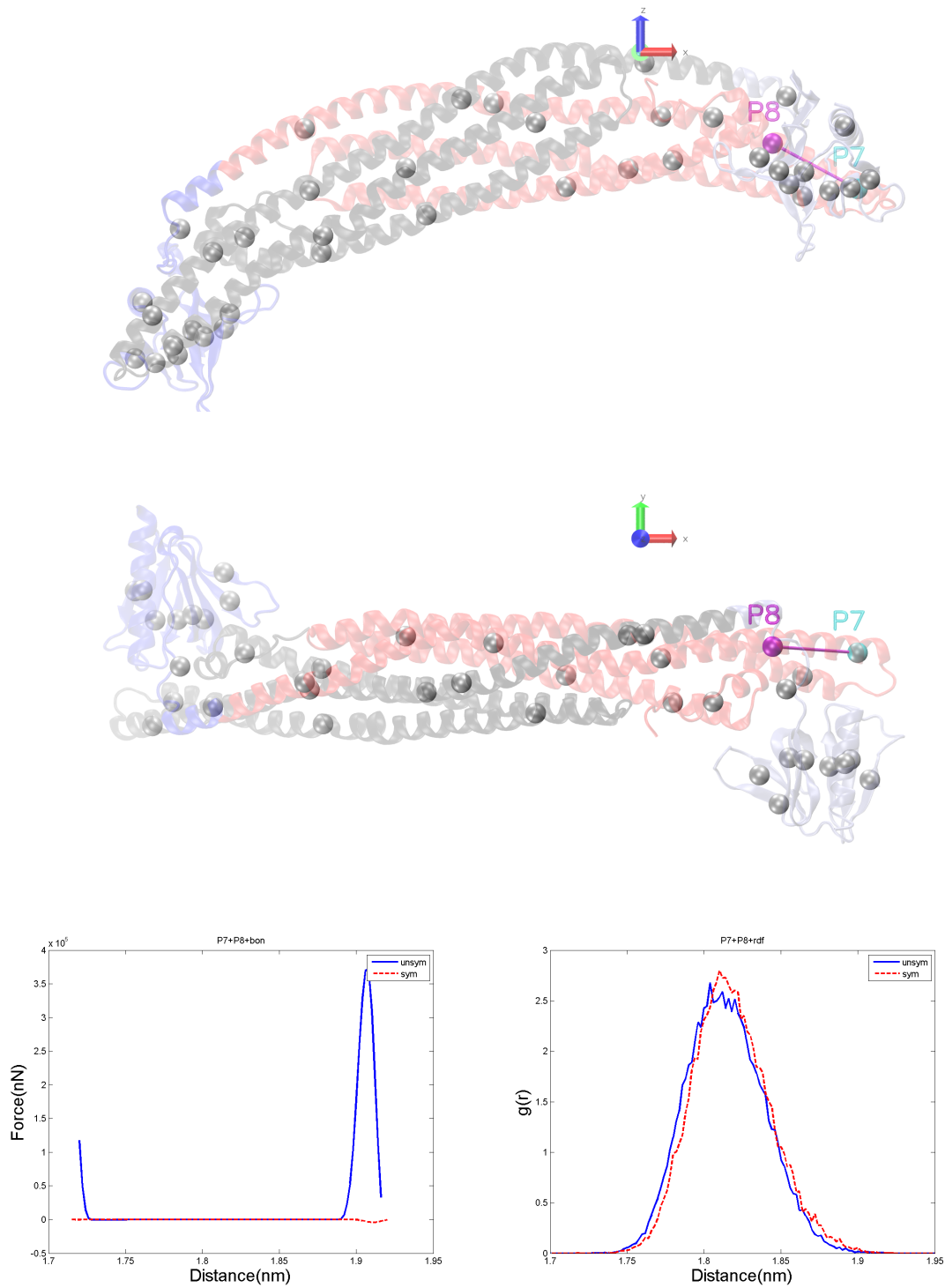
**Figure 4. Force-matching results of P4+P5 with positions in CG model and RDF.**



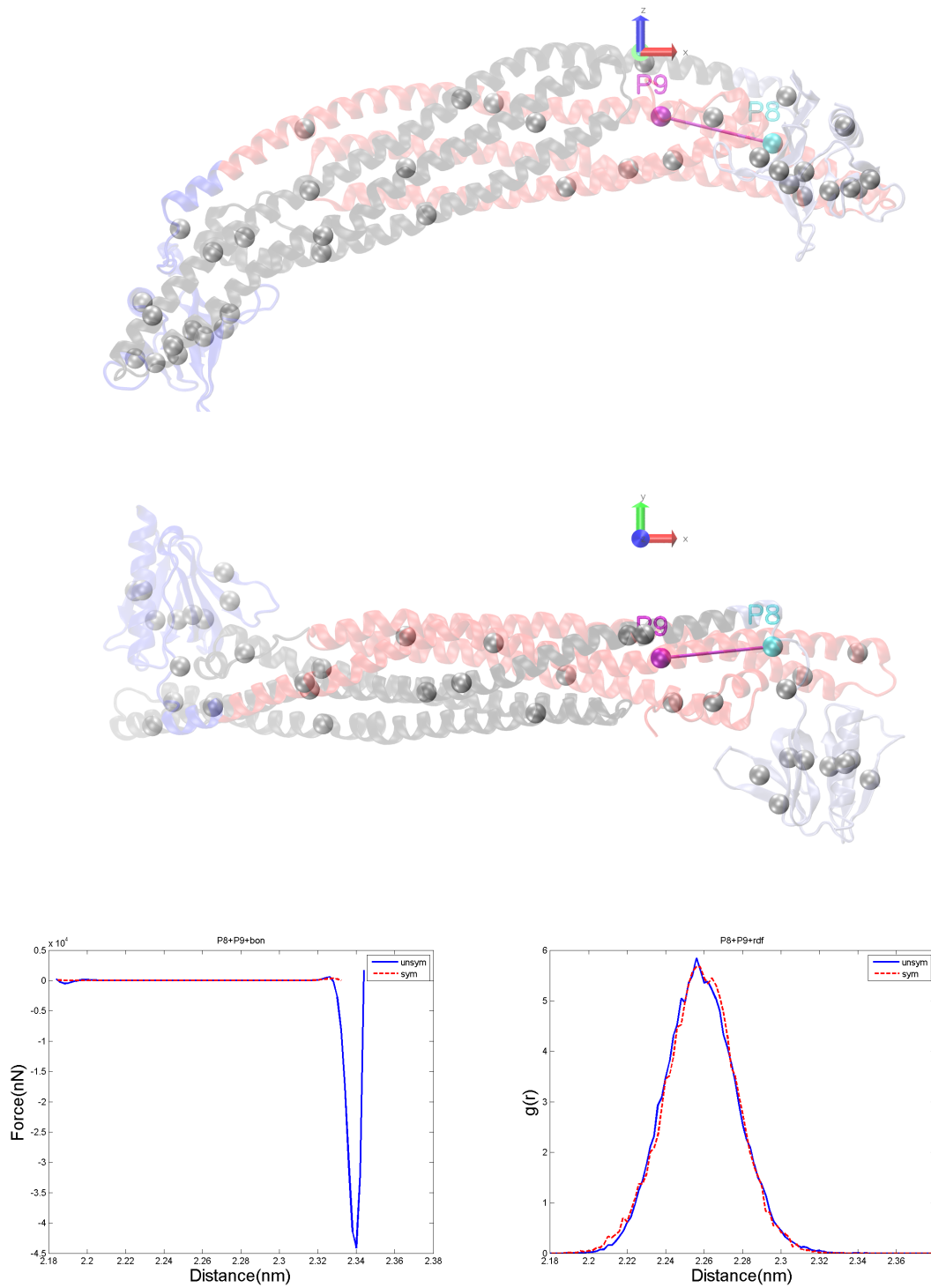
**Figure 5. Force-matching results of P5+P6 with positions in CG model and RDF.**



**Figure 6. Force-matching results of P6+P7 with positions in CG model and RDF.**

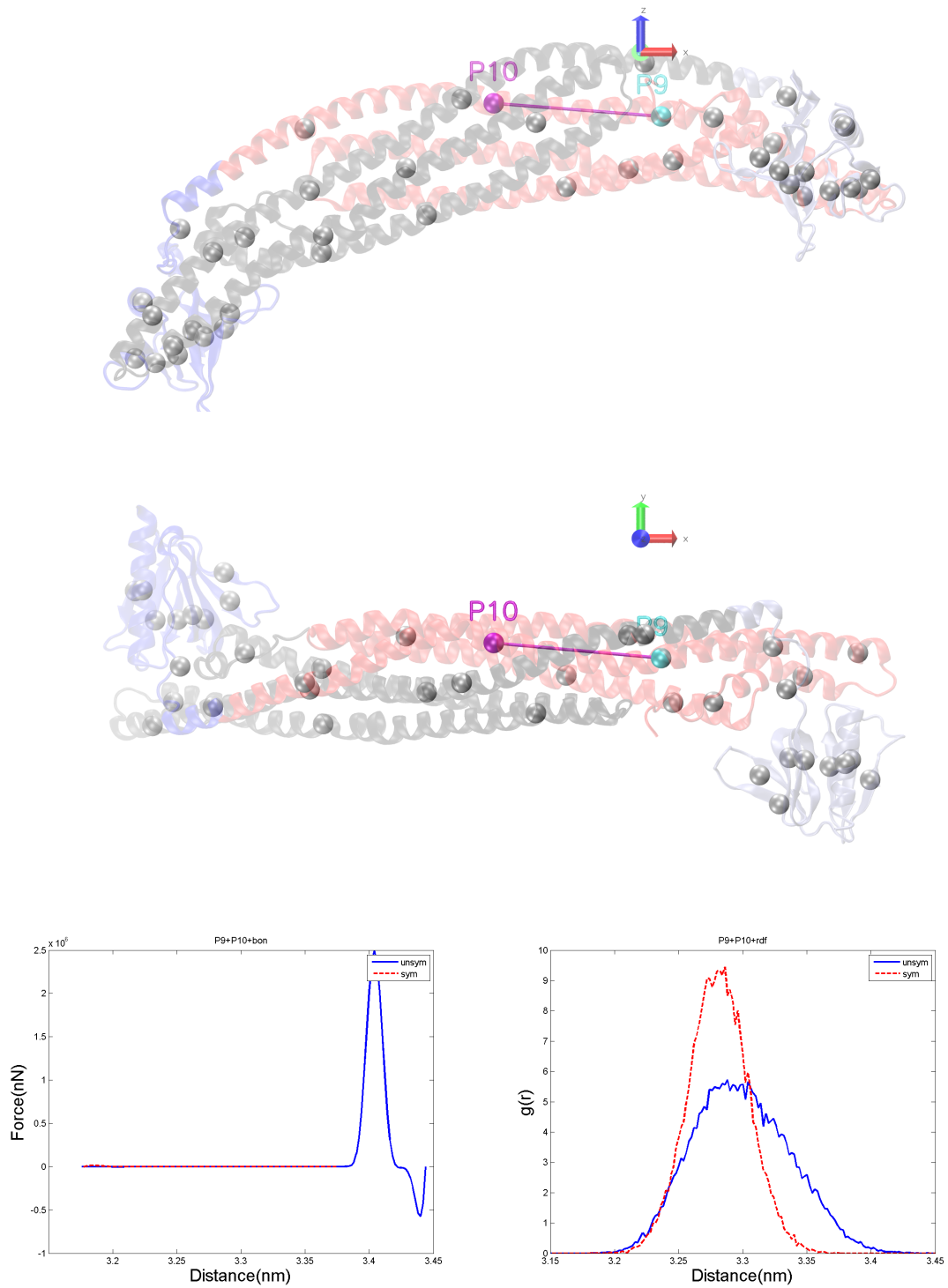


**Figure 7. Force-matching results of P7+P8 with positions in CG model and RDF.**

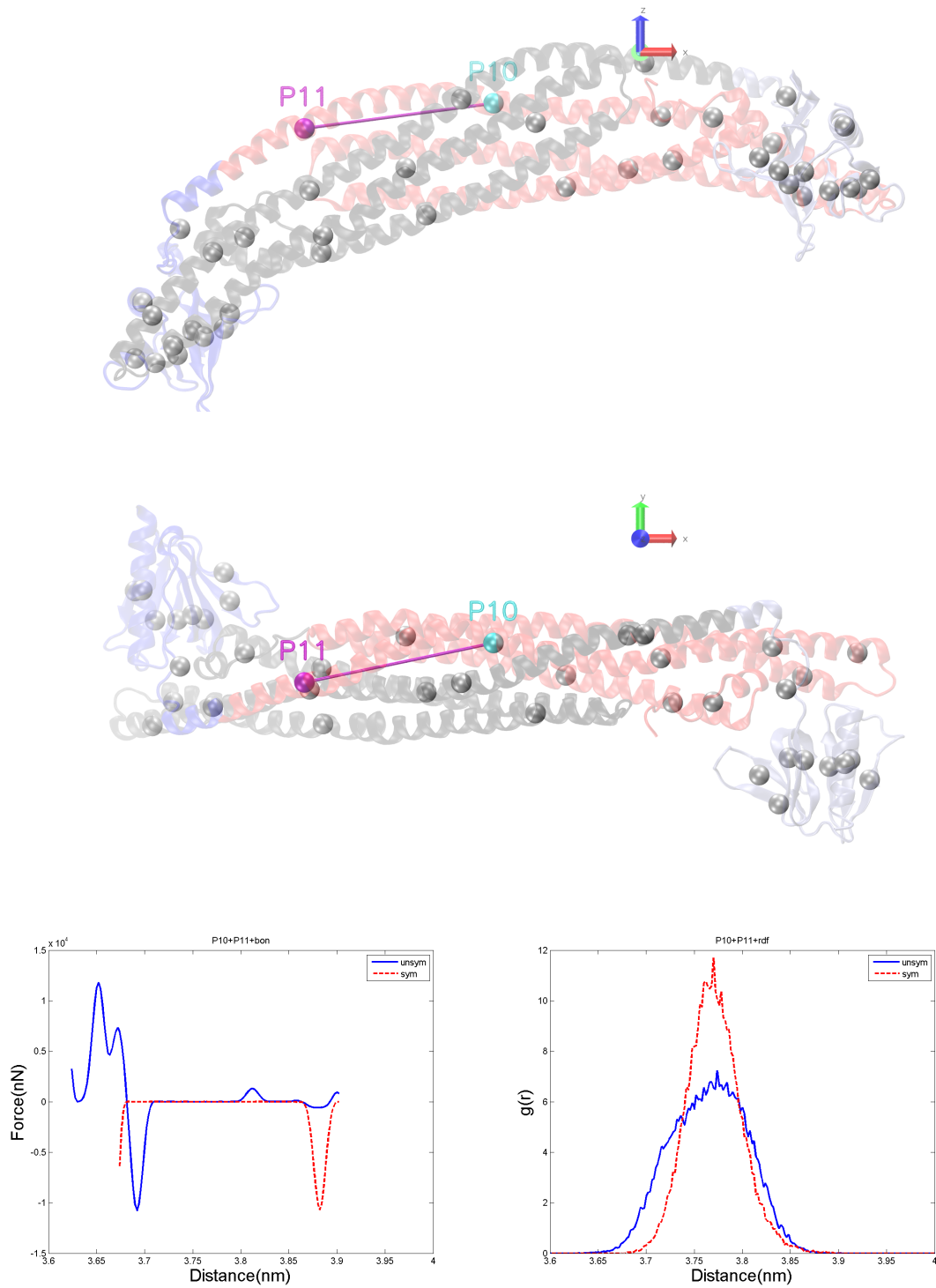


**Figure 8. Force-matching results of P8+P9 with positions in CG model and RDF.**

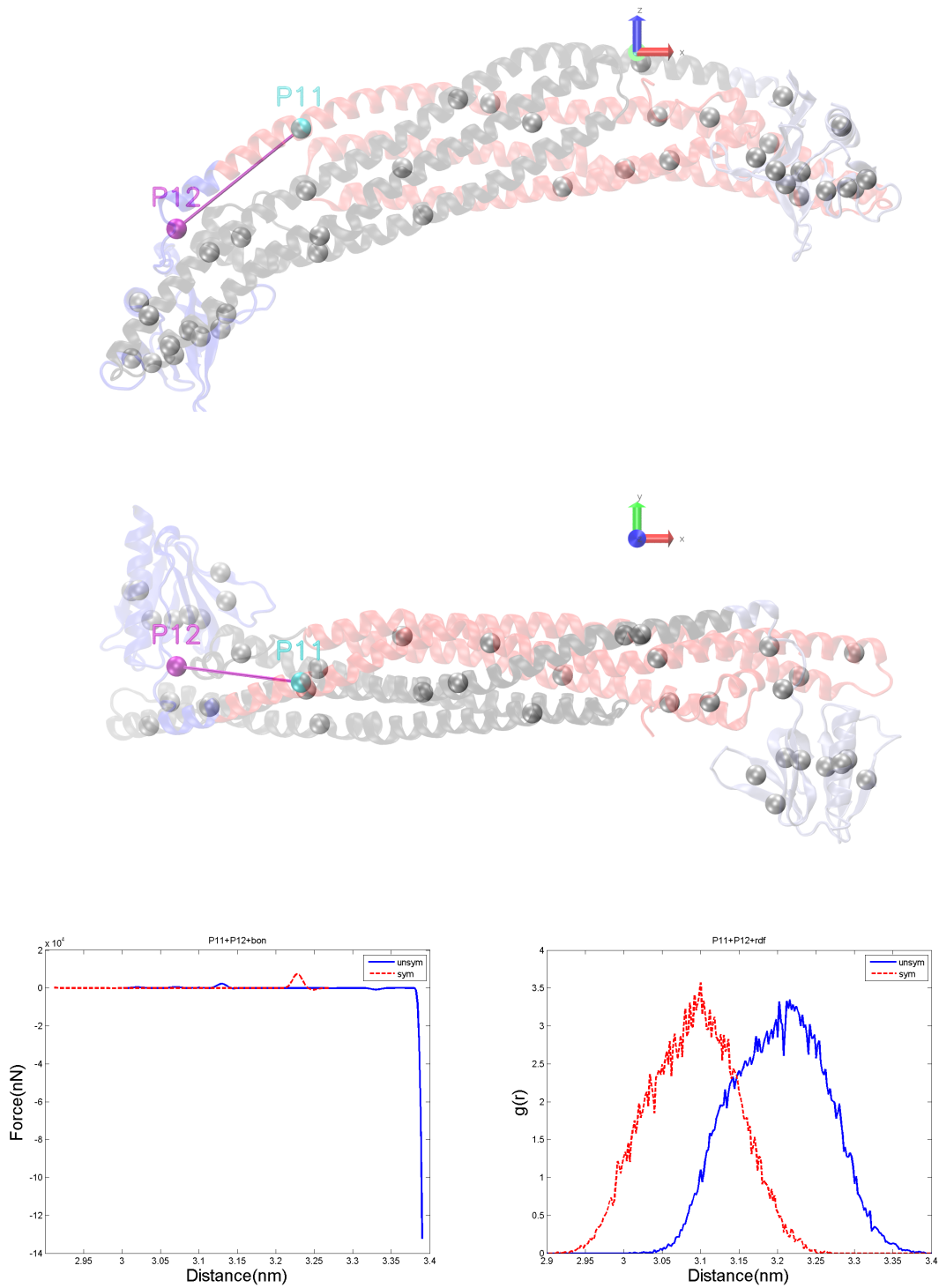




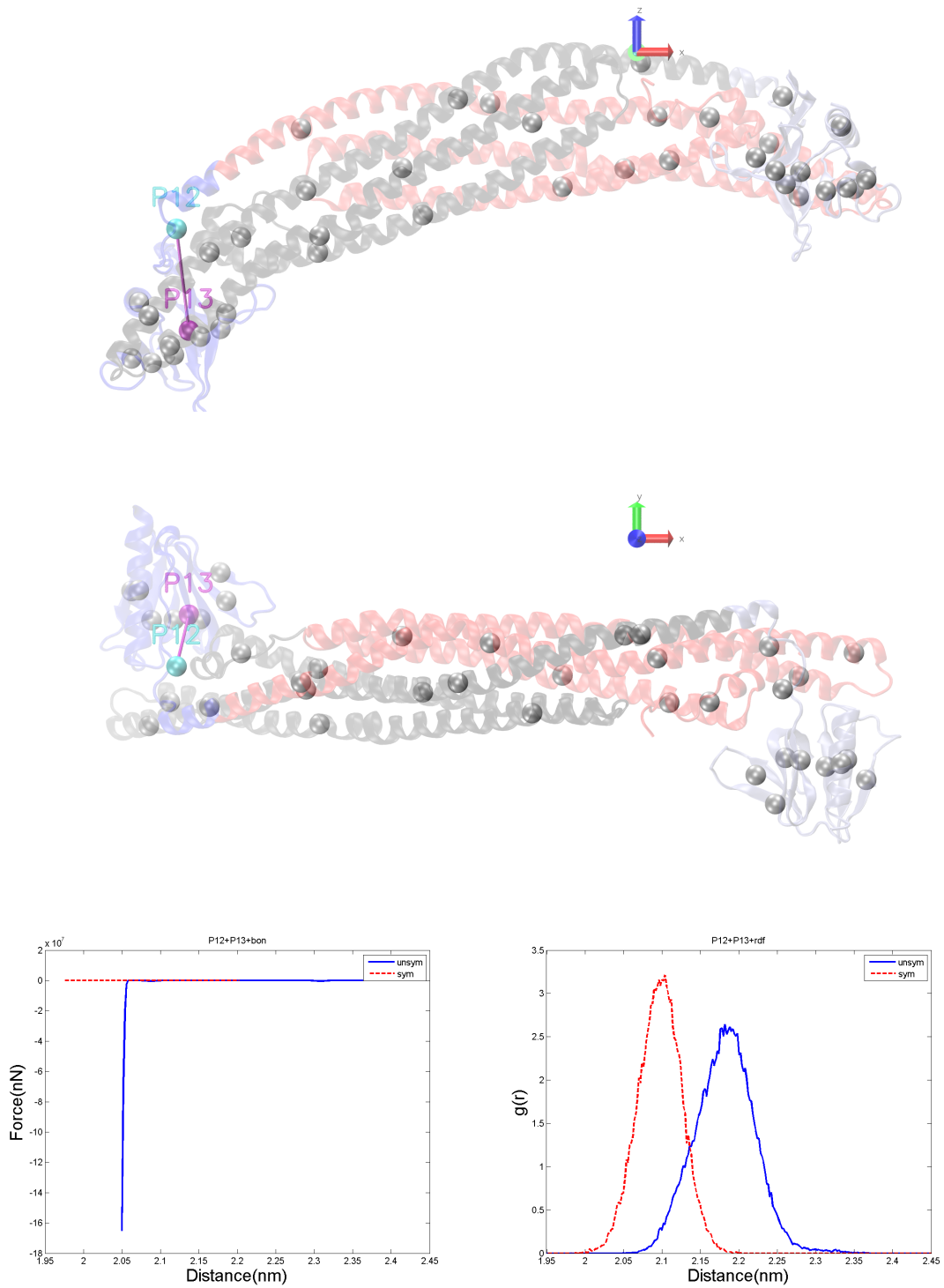
**Figure 9. Force-matching results of P9+P10 with positions in CG model and RDF.**



**Figure 10. Force-matching results of P10+P11 with positions in CG model and RDF.**



**Figure 11. Force-matching results of P11+P12 with positions in CG model and RDF.**



**Figure 12. Force-matching results of P12+P13 with positions in CG model and RDF.**

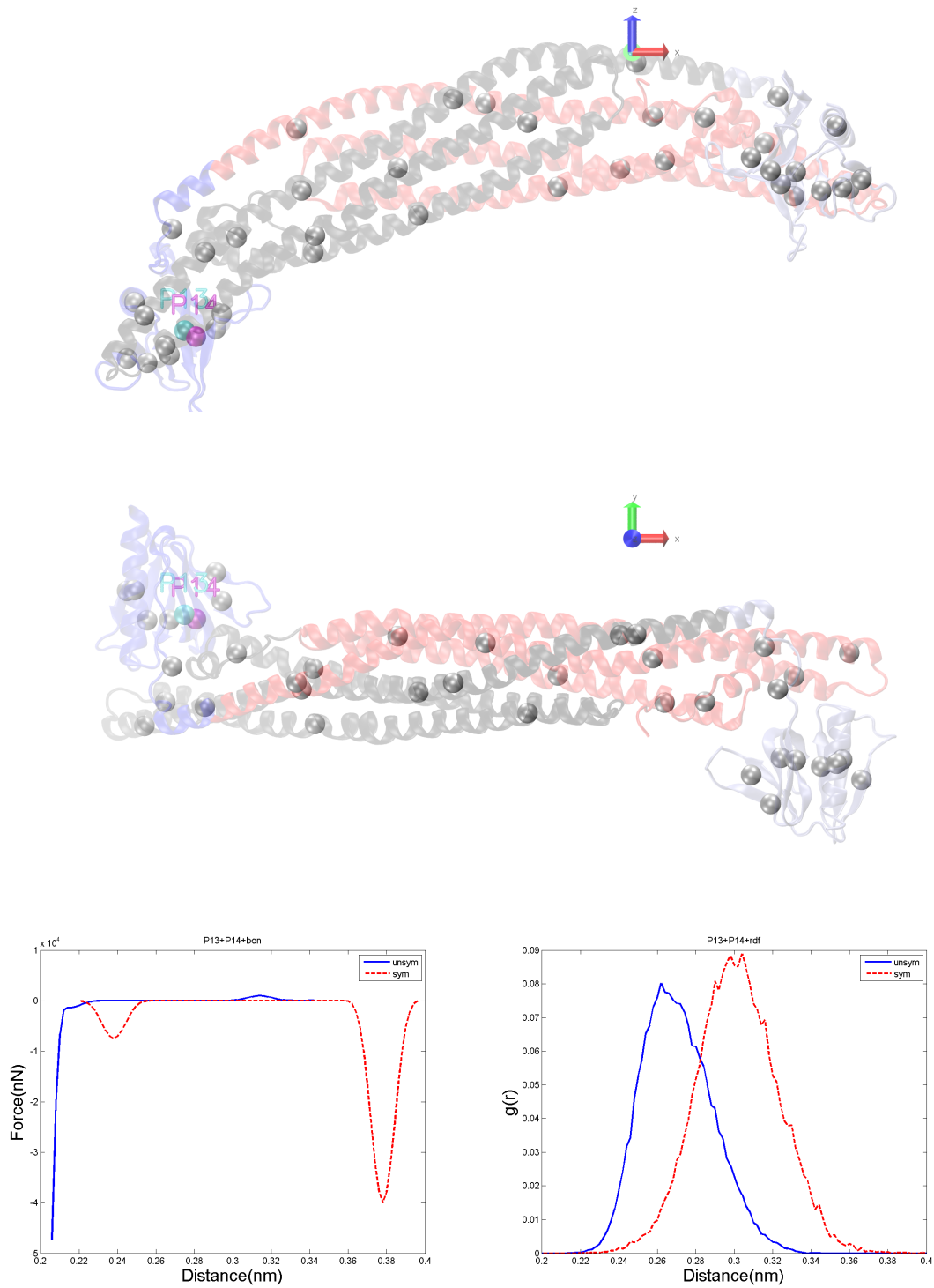


Figure 13. Force-matching results of P13+P14 with positions in CG model and RDF.

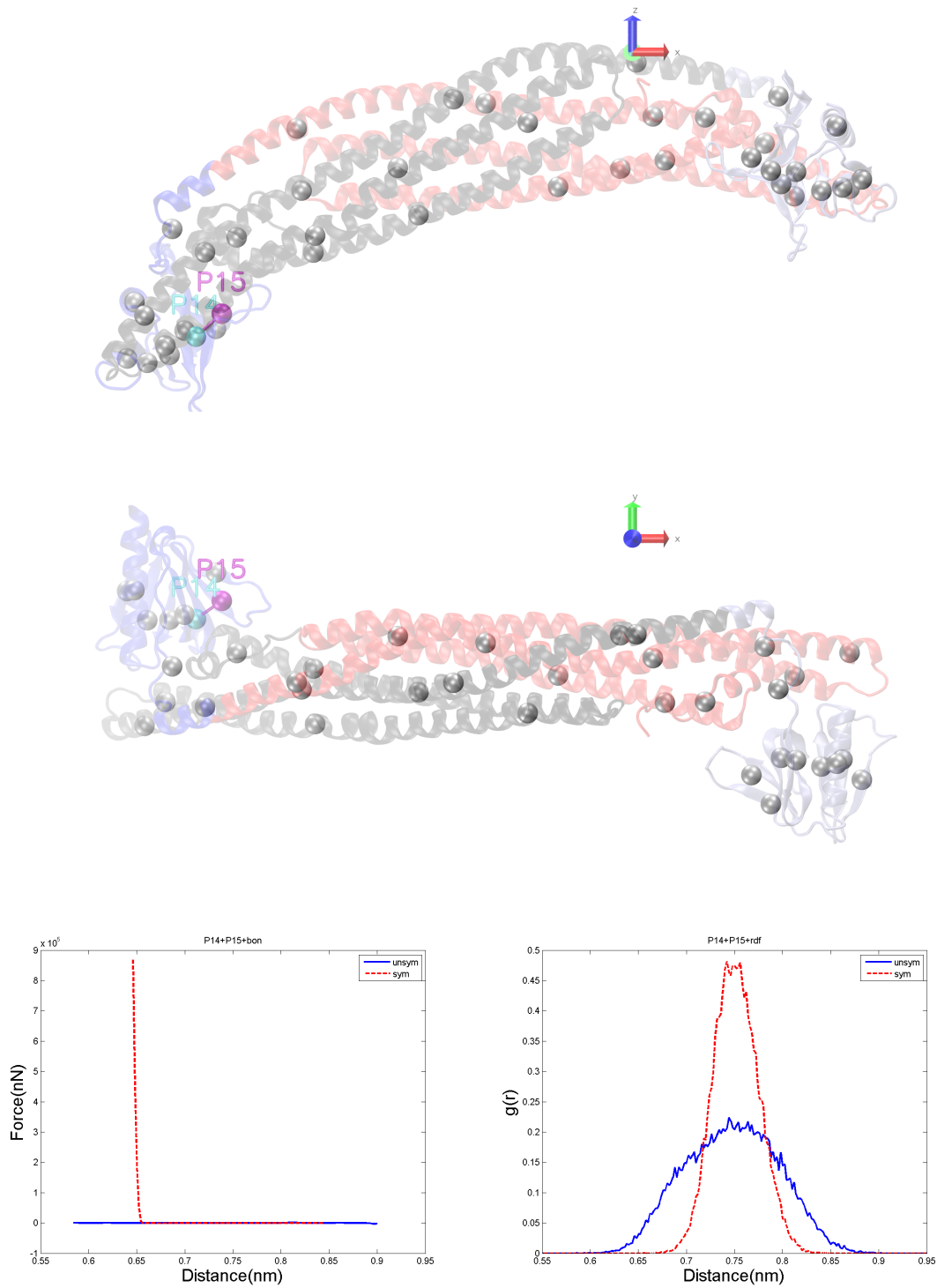
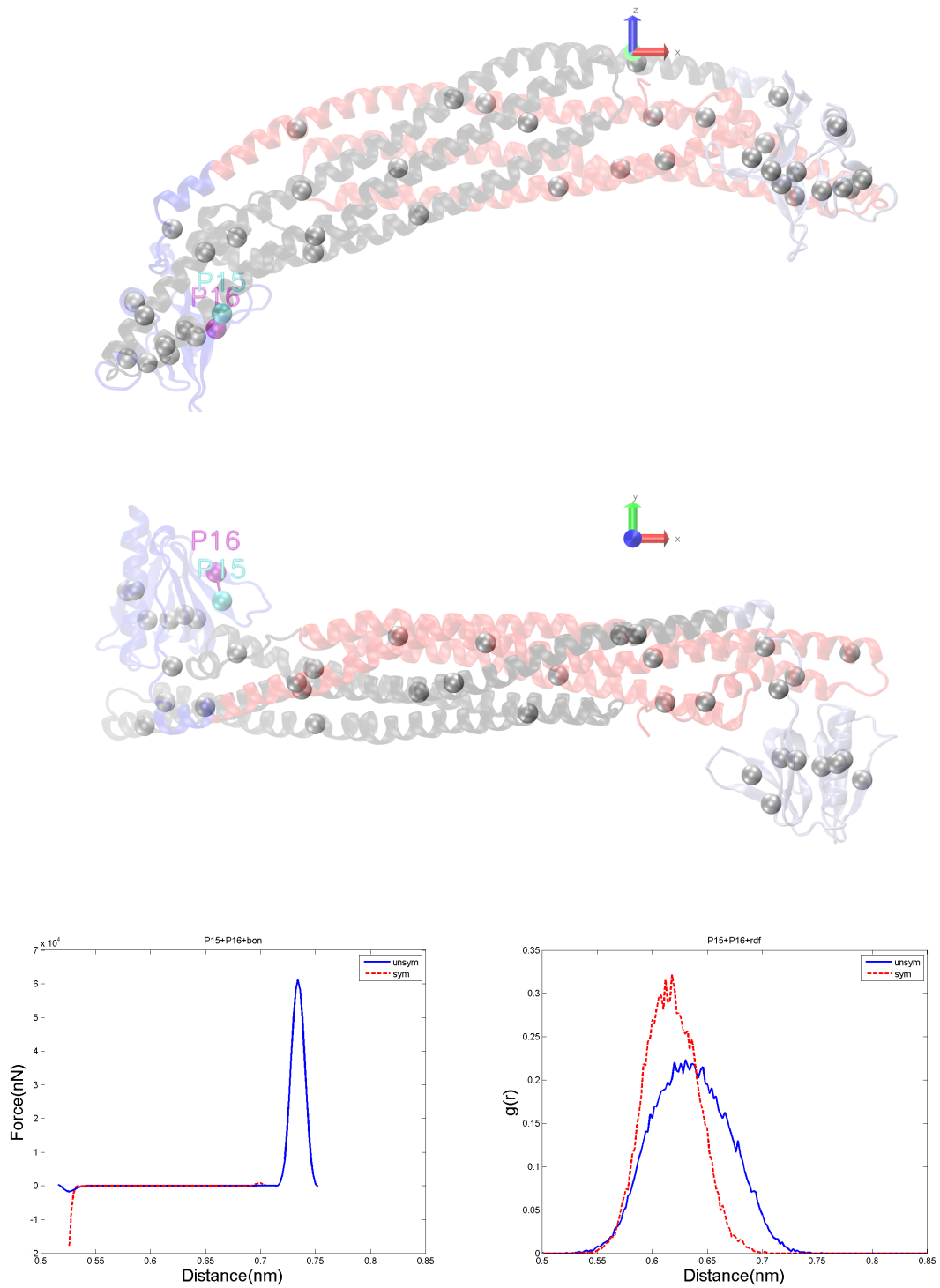


Figure 14. Force-matching results of P14+P15 with positions in CG model and RDF.



**Figure 15. Force-matching results of P15+P16 with positions in CG model and RDF.**

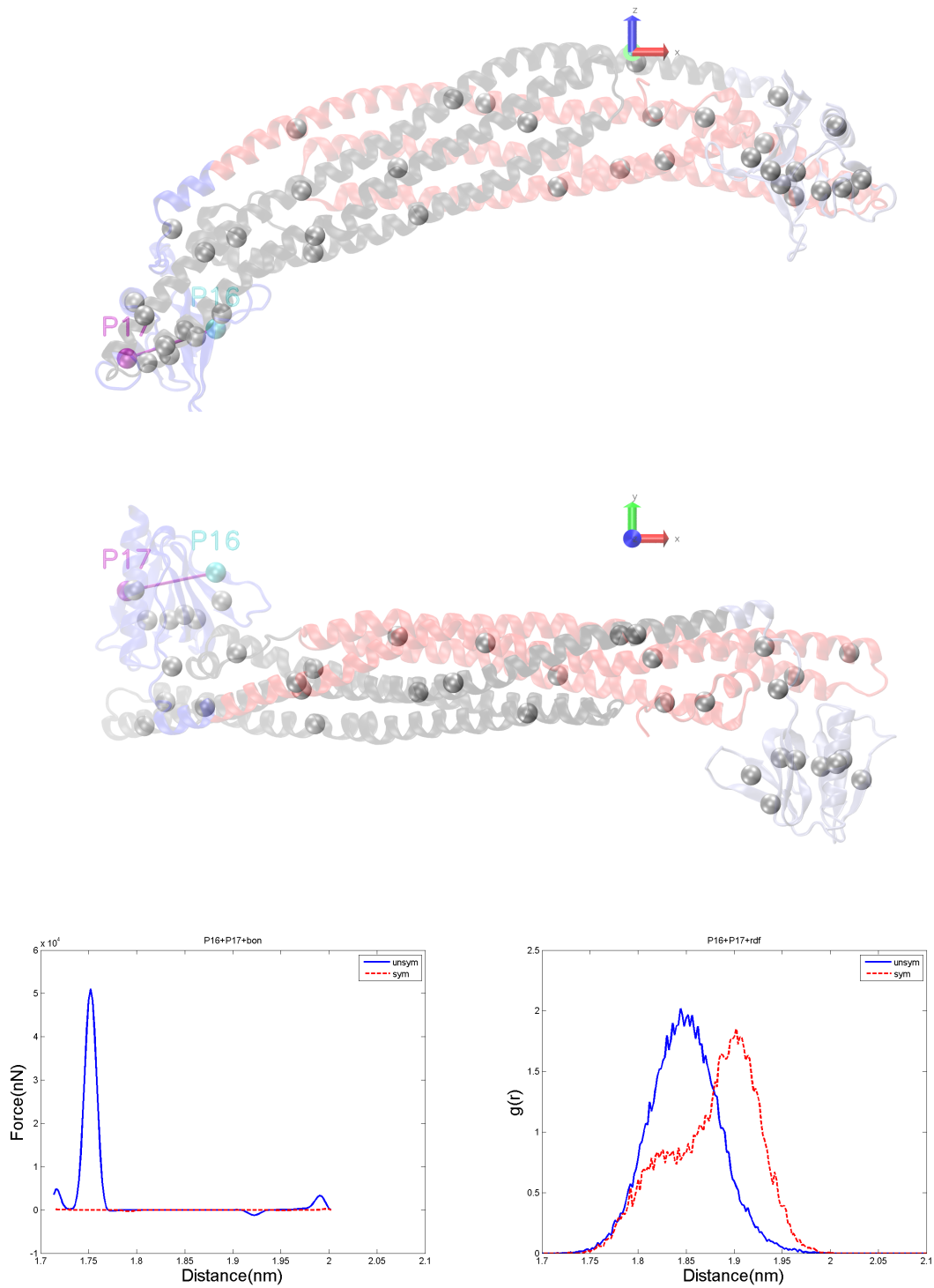
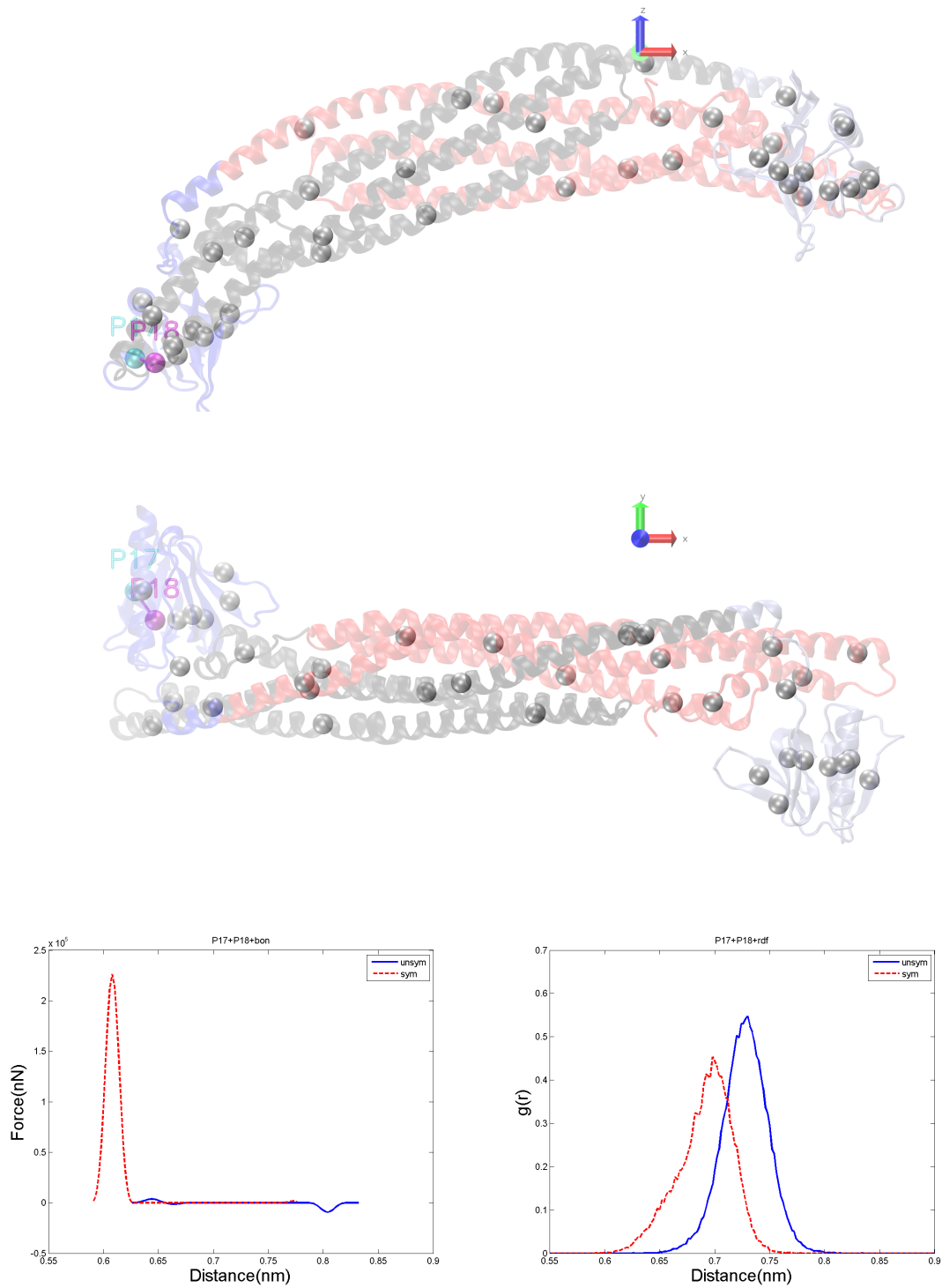


Figure 16. Force-matching results of P16+P17 with positions in CG model and RDF.





**Figure 17. Force-matching results of P17+P18 with positions in CG model and RDF.**

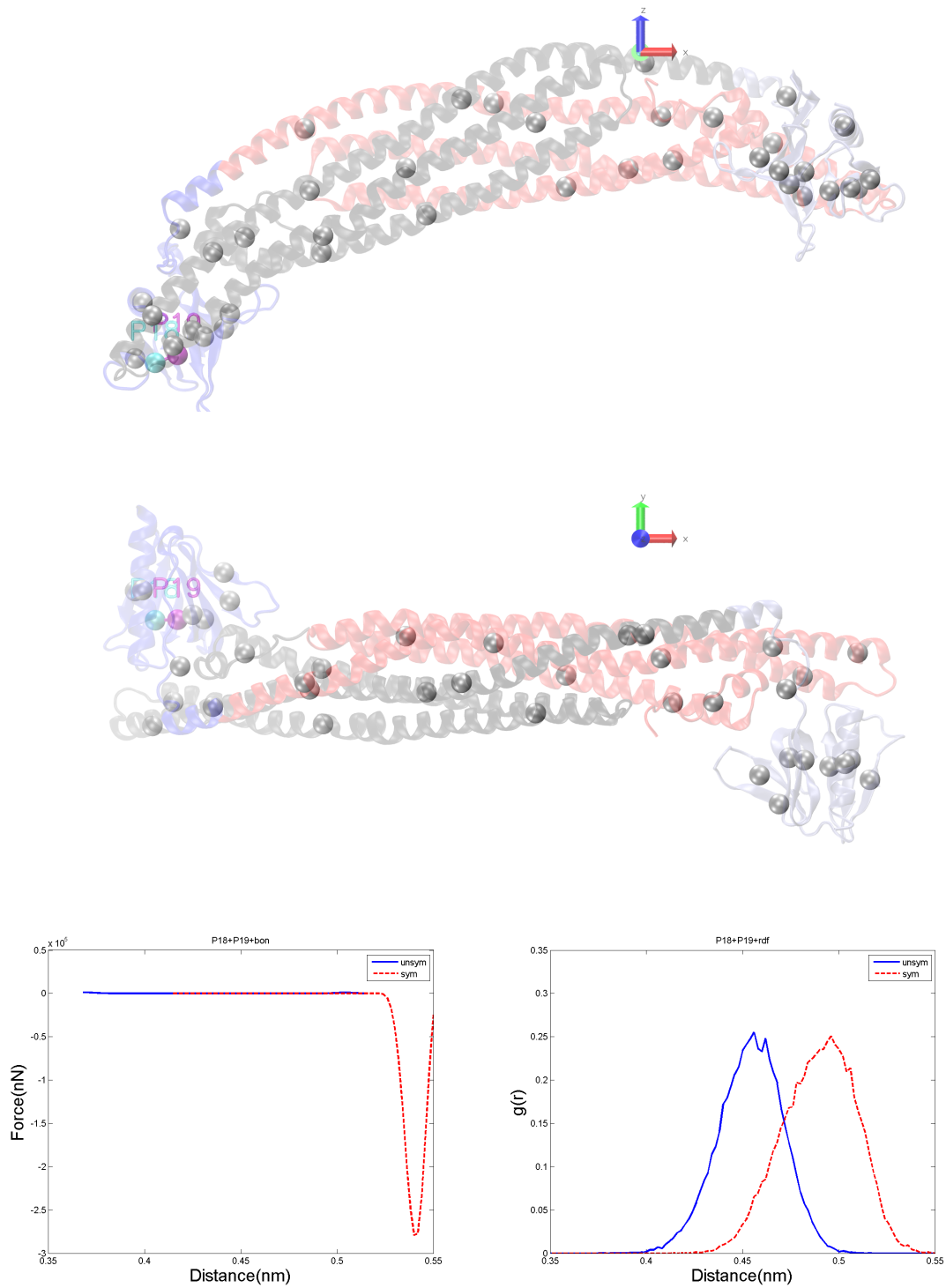
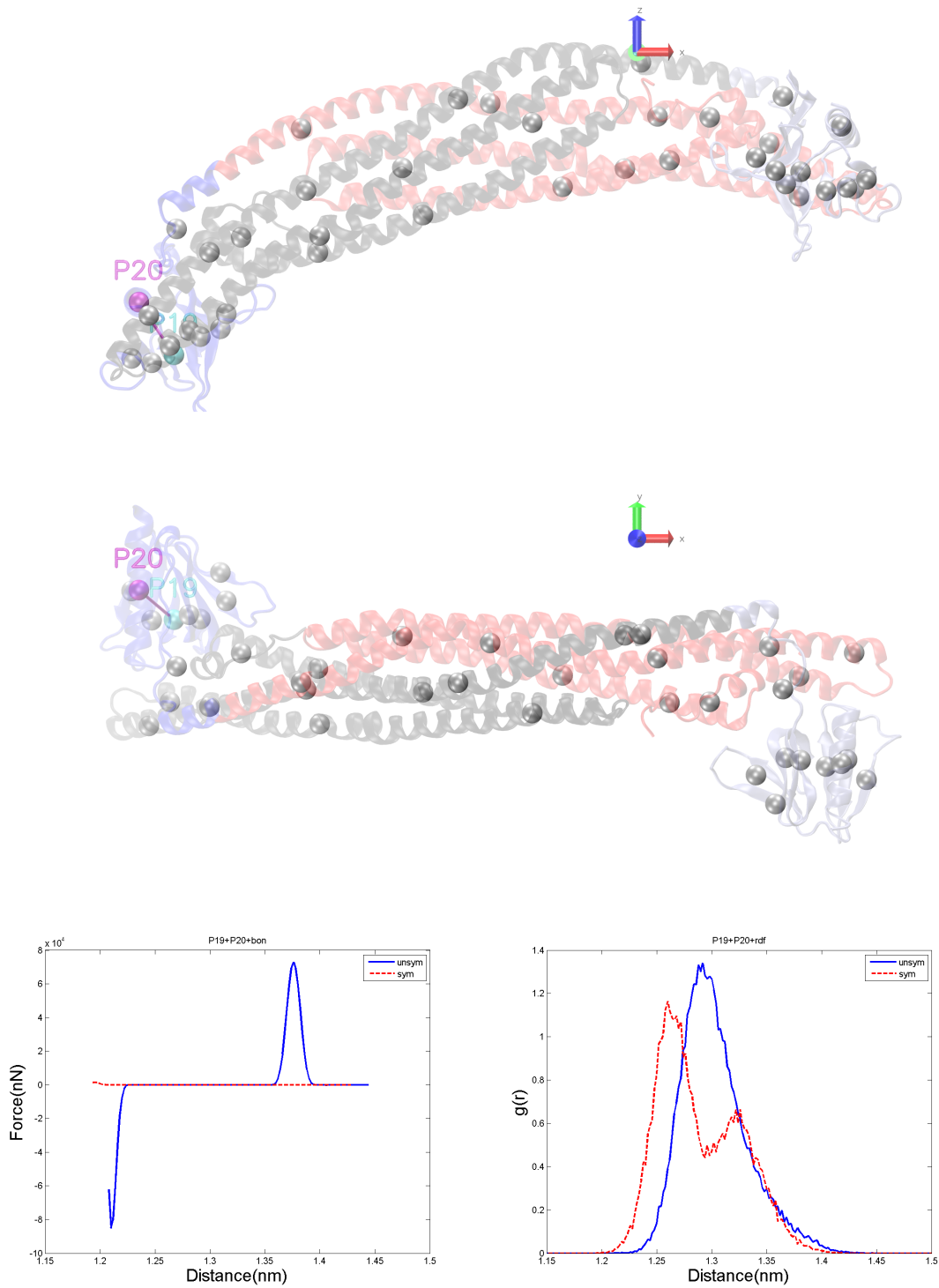
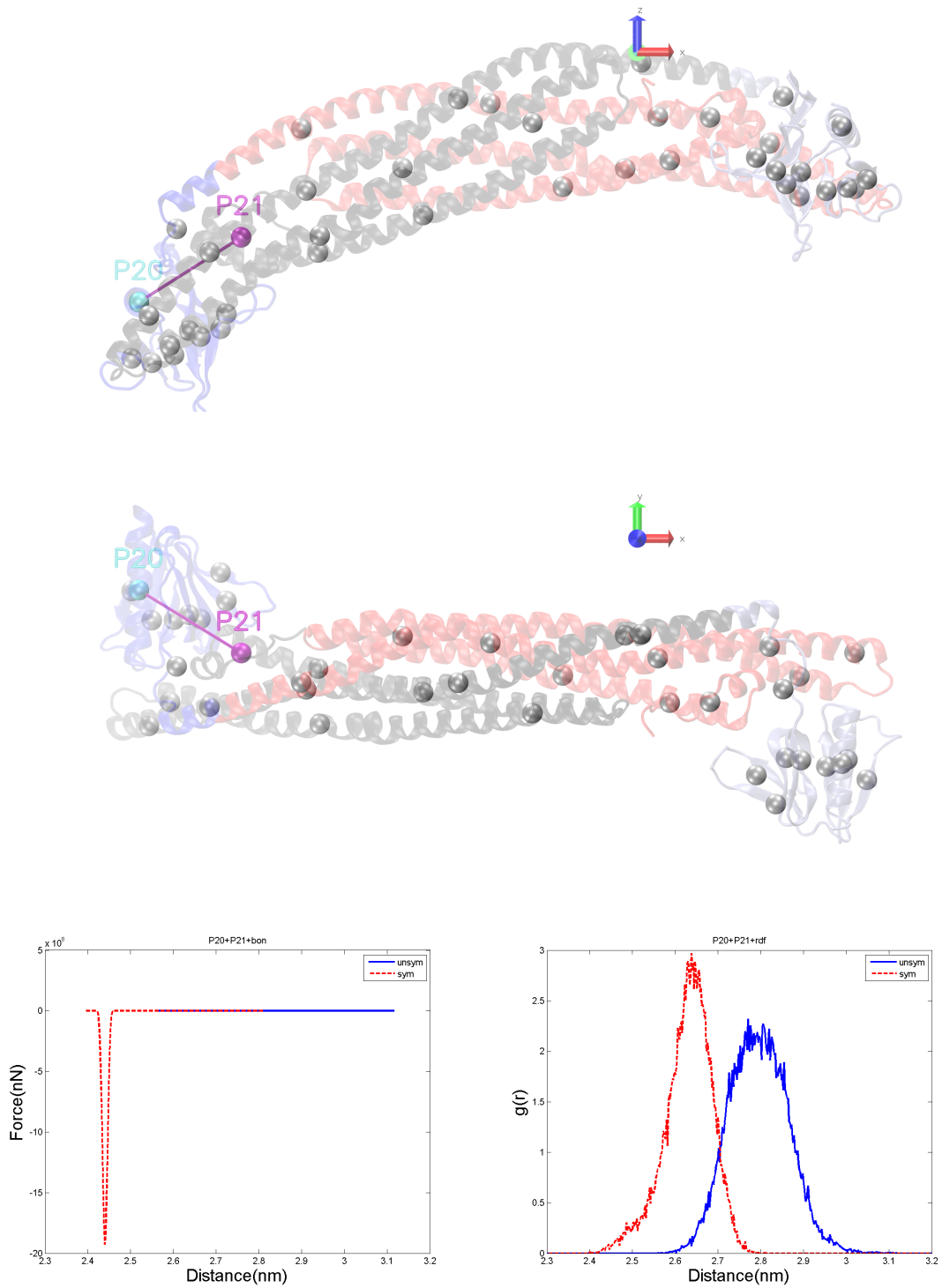


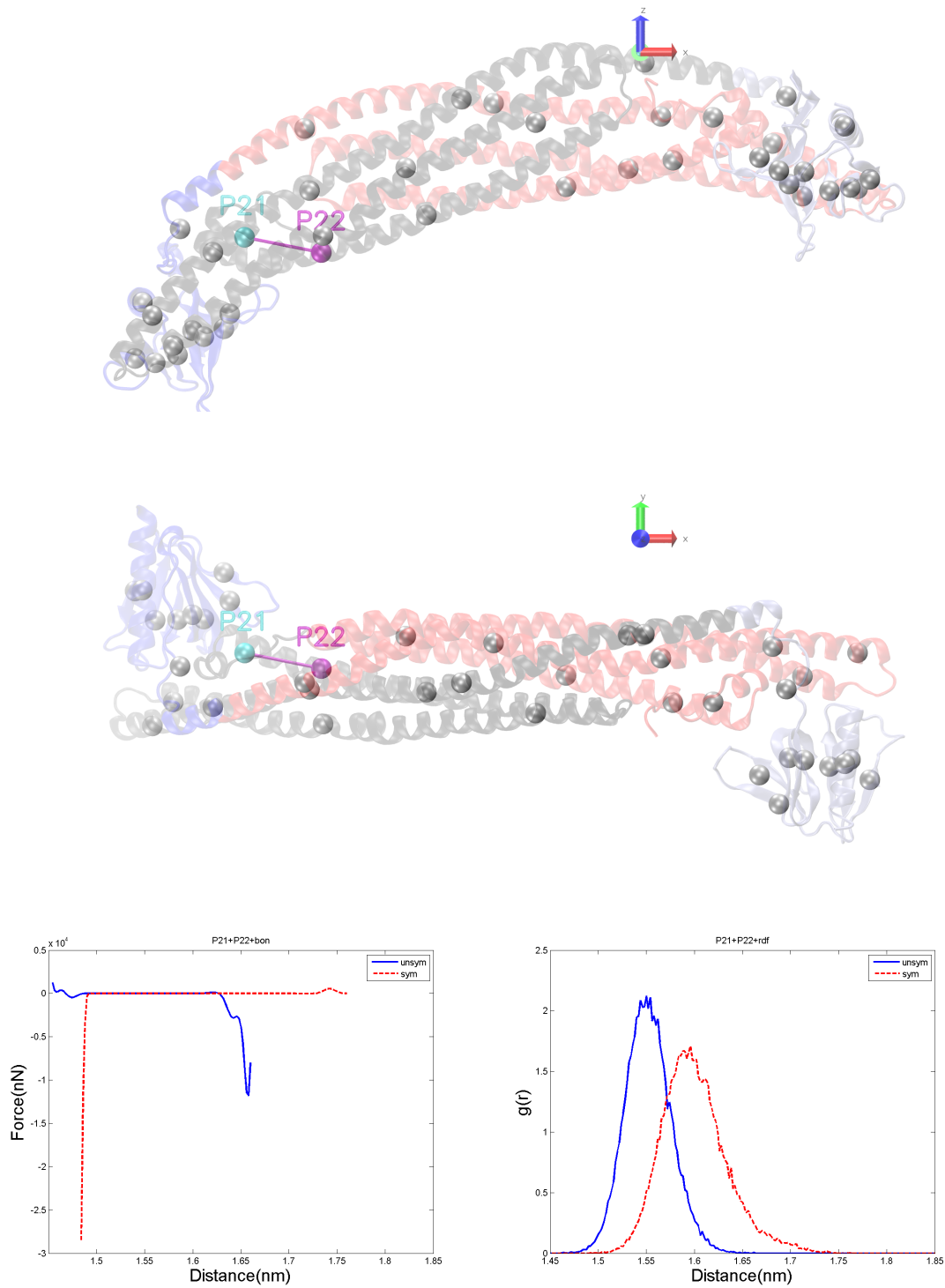
Figure 18. Force-matching results of P18+P19 with positions in CG model and RDF.



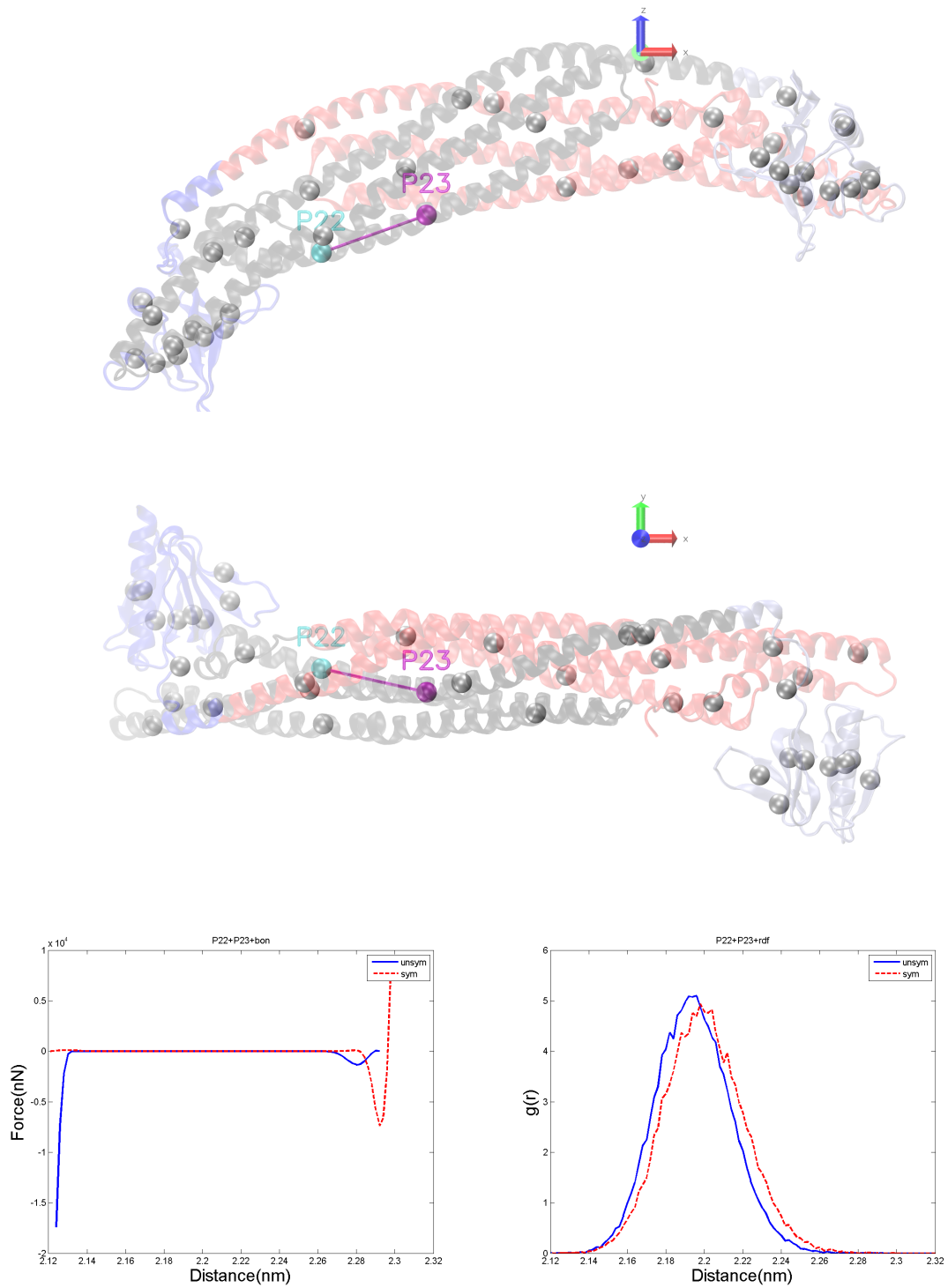
**Figure 19. Force-matching results of P19+P20 with positions in CG model and RDF.**



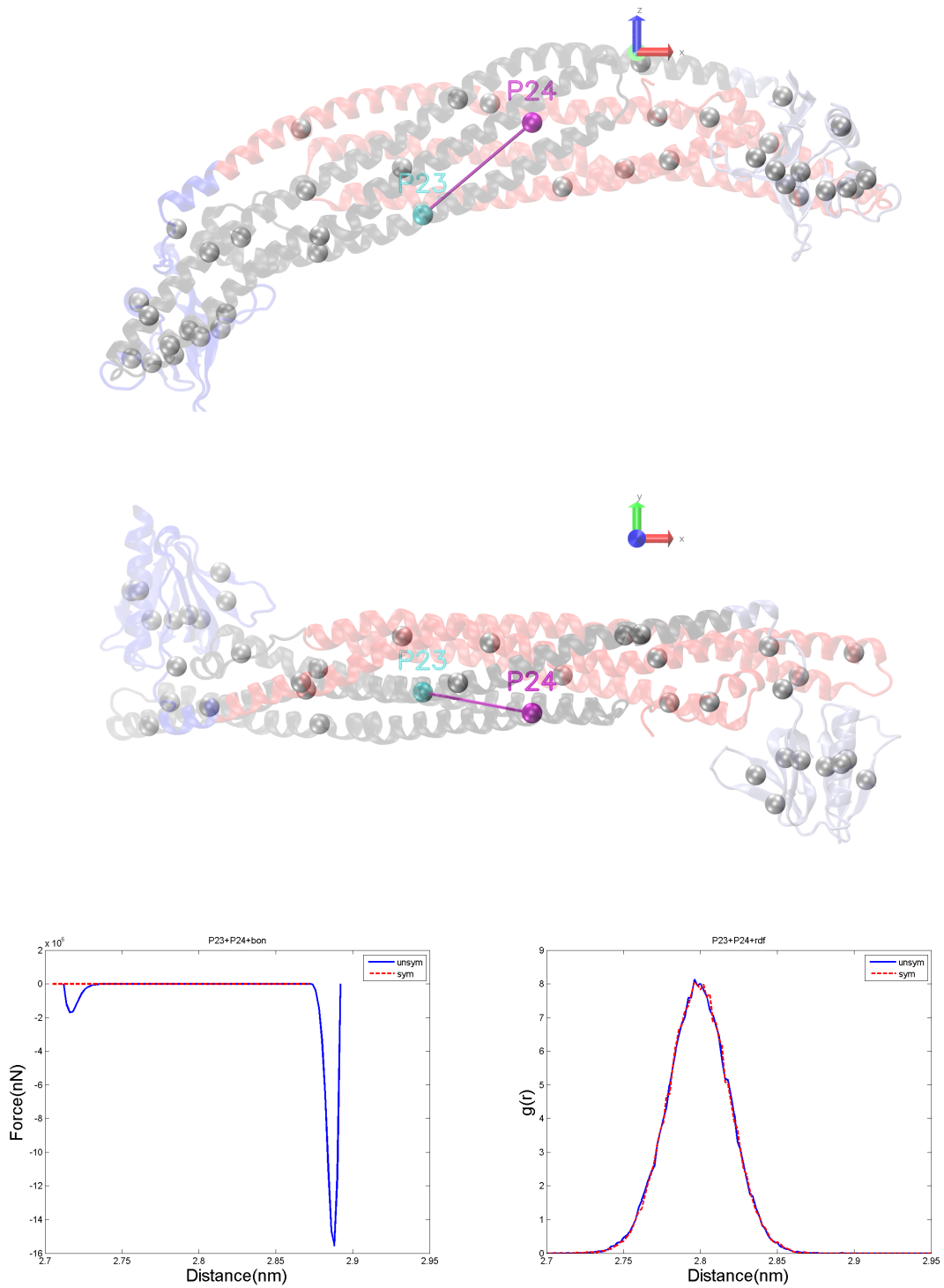
**Figure 20. Force-matching results of P20+P21 with positions in CG model and RDF.**



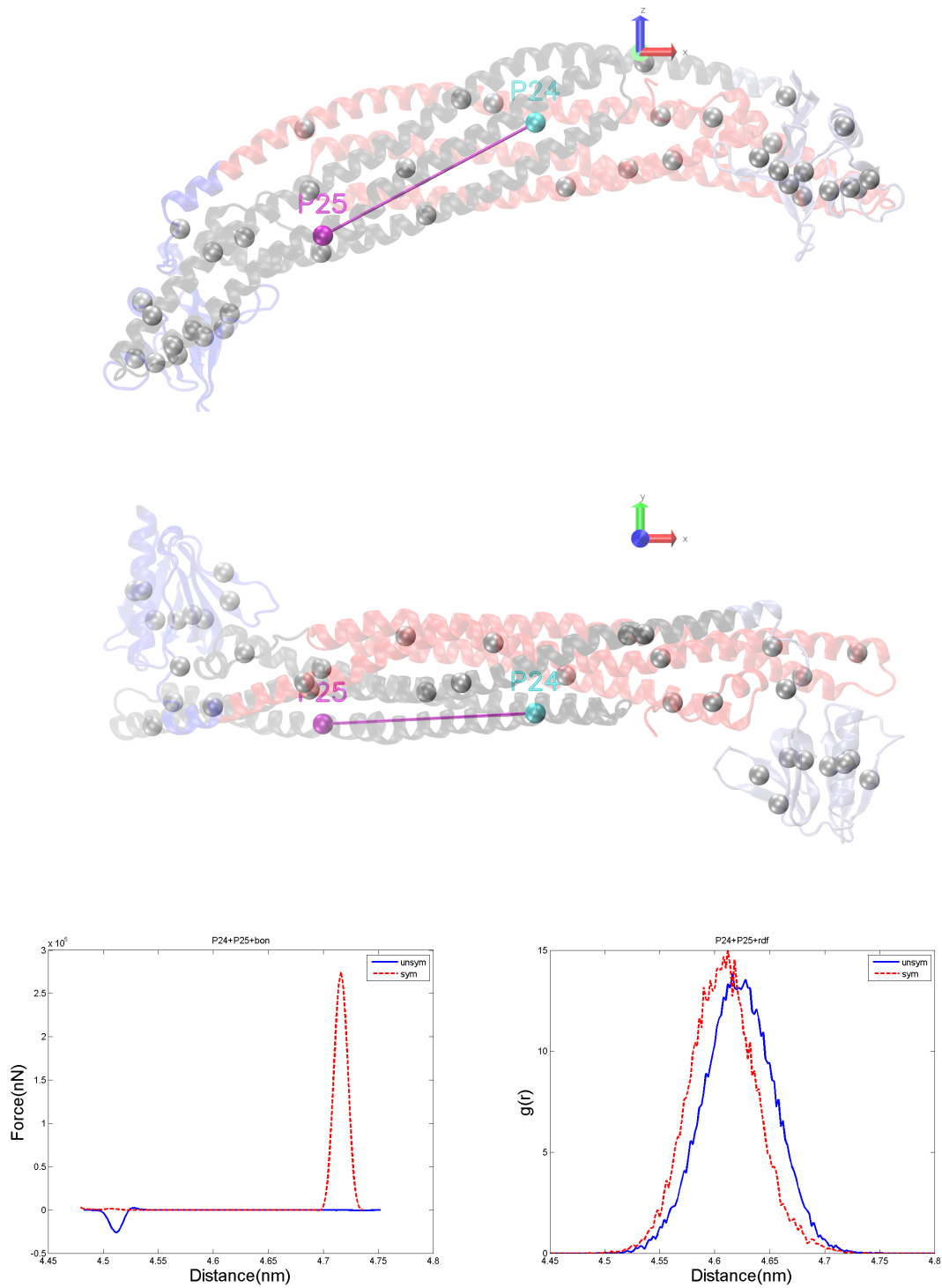
**Figure 21. Force-matching results of P21+P22with positions in CG model and RDF.**



**Figure 22. Force-matching results of P22+P23 with positions in CG model and RDF.**

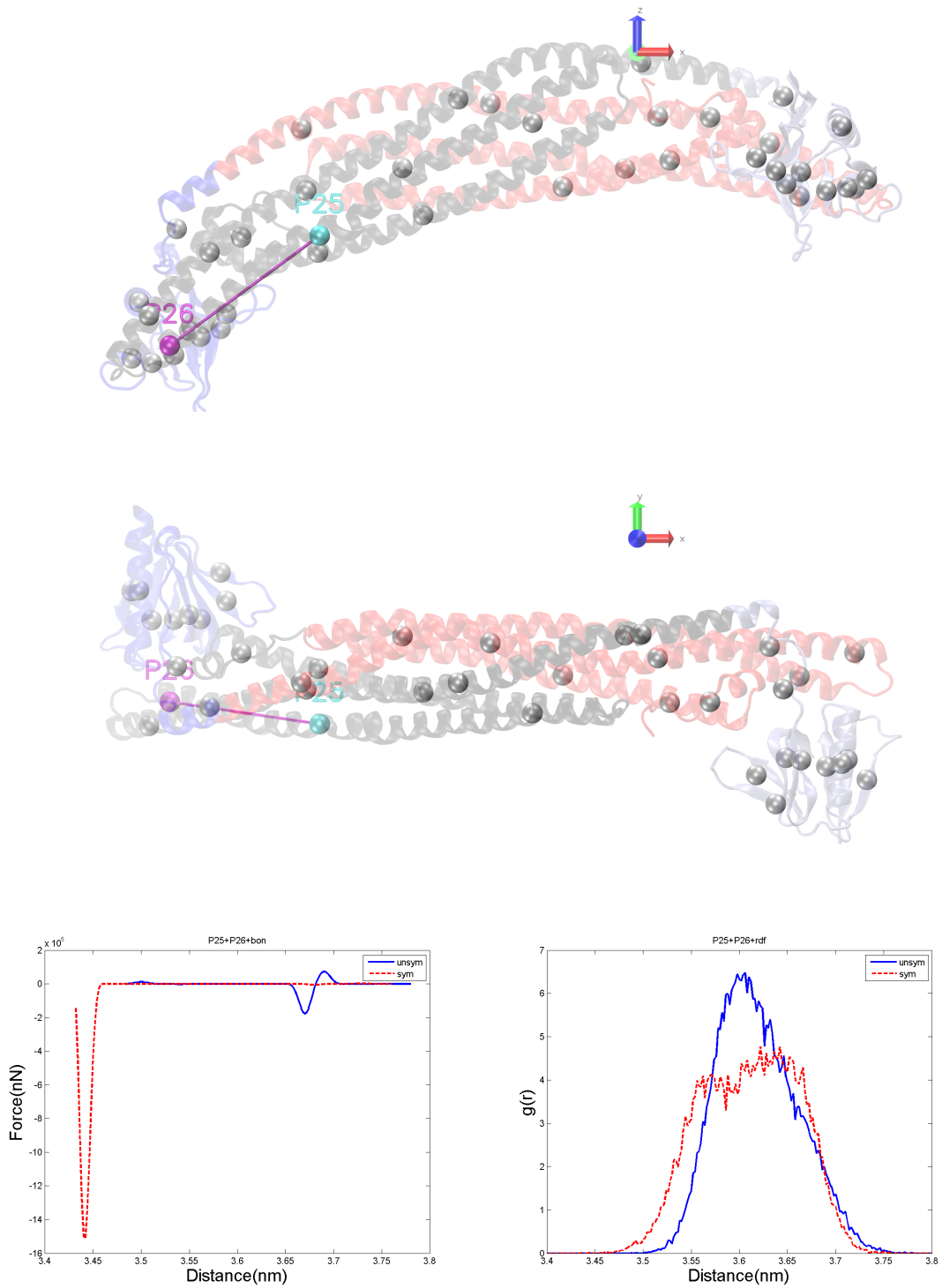


**Figure 23. Force-matching results of P23+P24 with positions in CG model and RDF.**

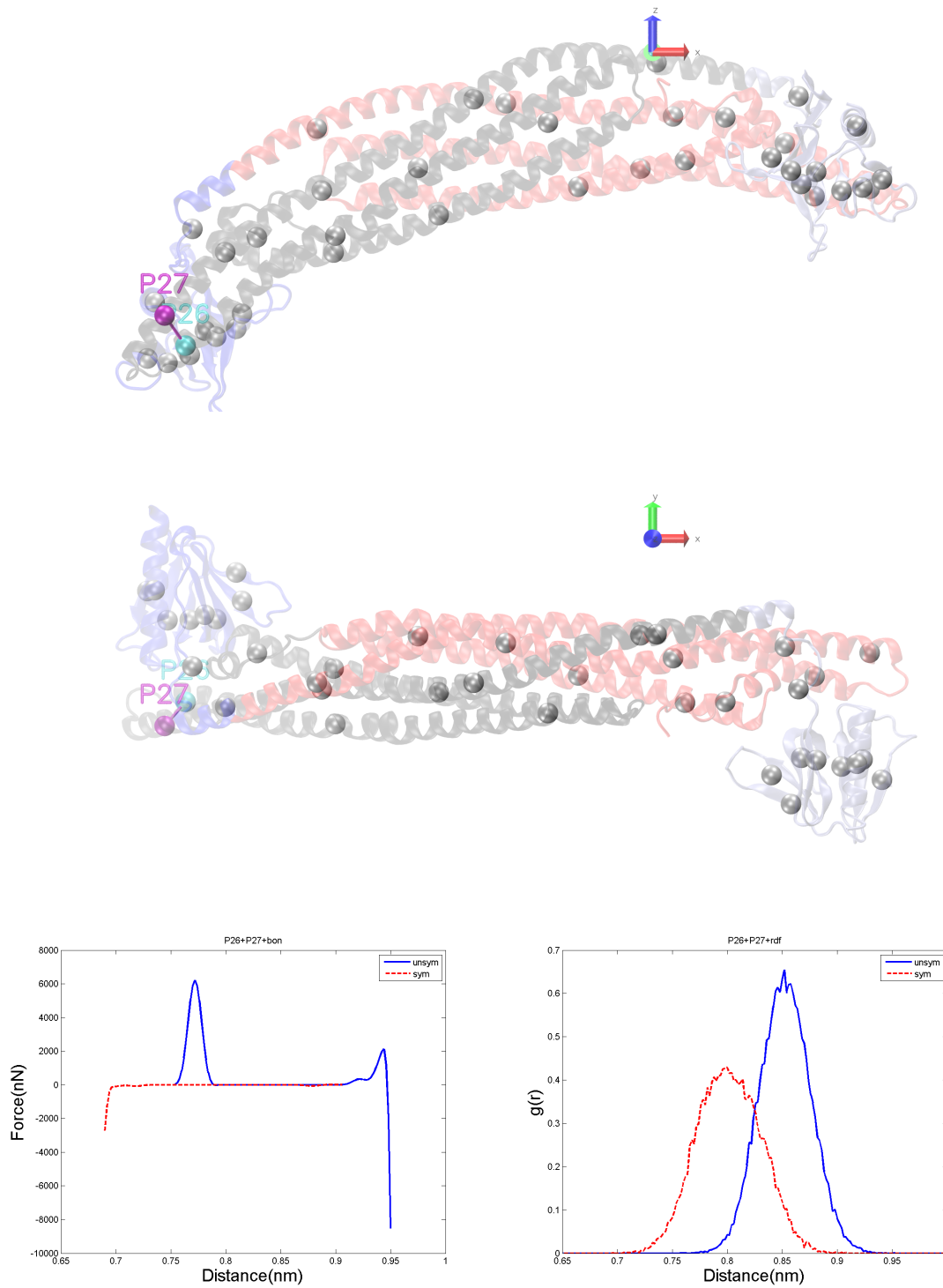


**Figure 24. Force-matching results of P24+P25 with positions in CG model and RDF.**

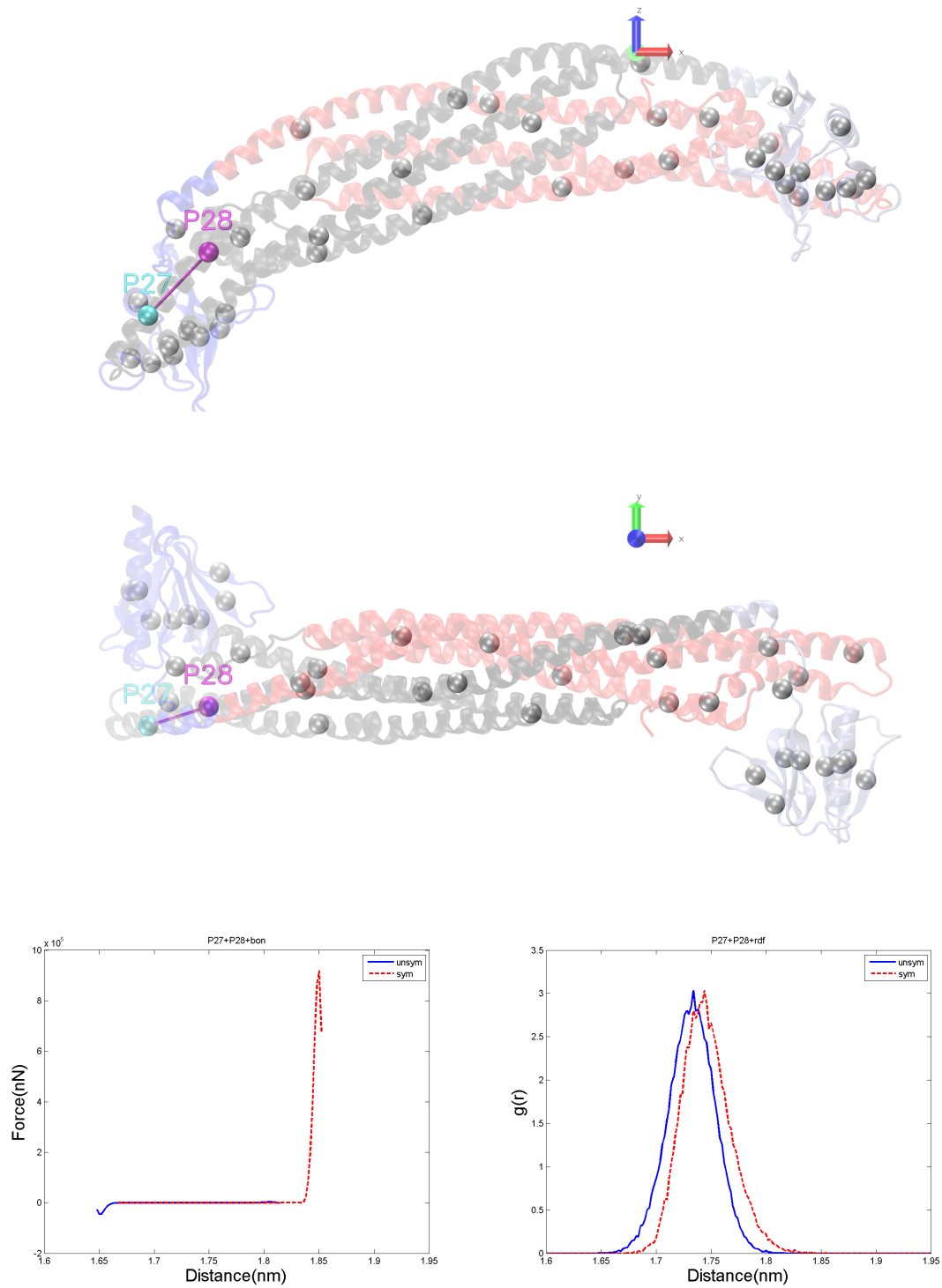




**Figure 25. Force-matching results of P25+P26 with positions in CG model and RDF.**



**Figure 26. Force-matching results of P26+P27 with positions in CG model and RDF.**



**Figure 27. Force-matching results of P27+P28 with positions in CG model and RDF.**

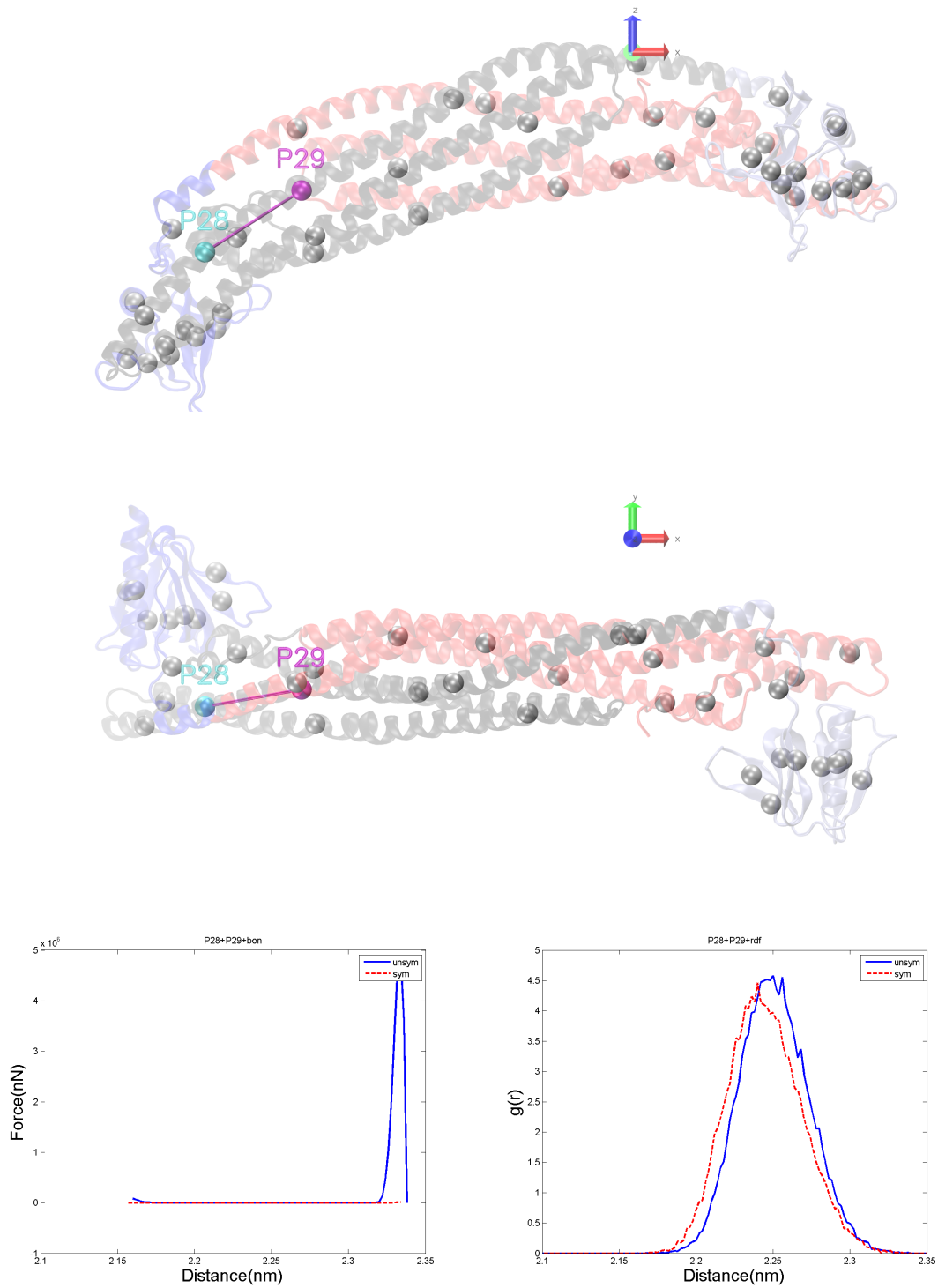
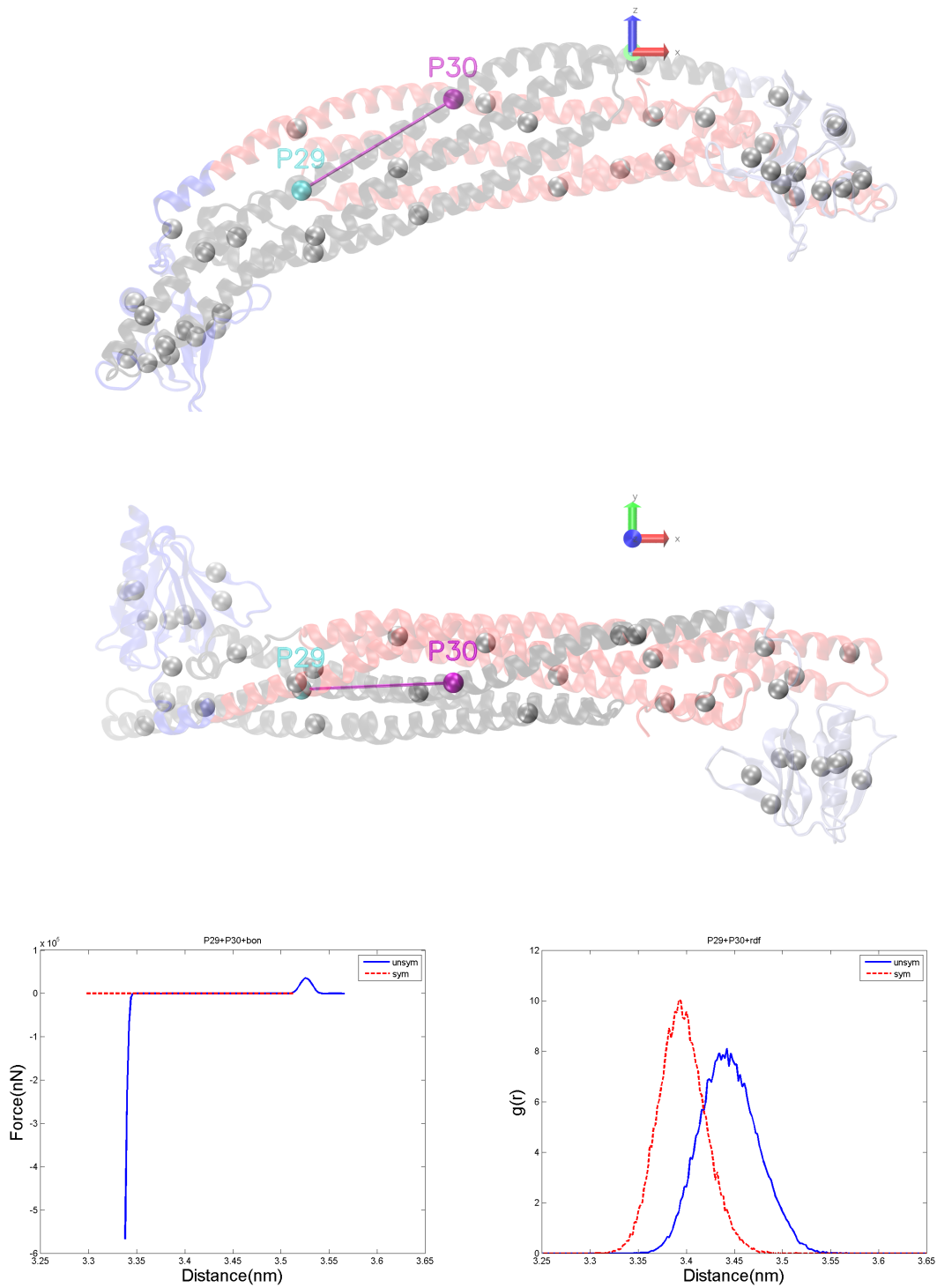


Figure 28. Force-matching results of P28+P29 with positions in CG model and RDF.



**Figure 29. Force-matching results of P29+P30 with positions in CG model and RDF.**

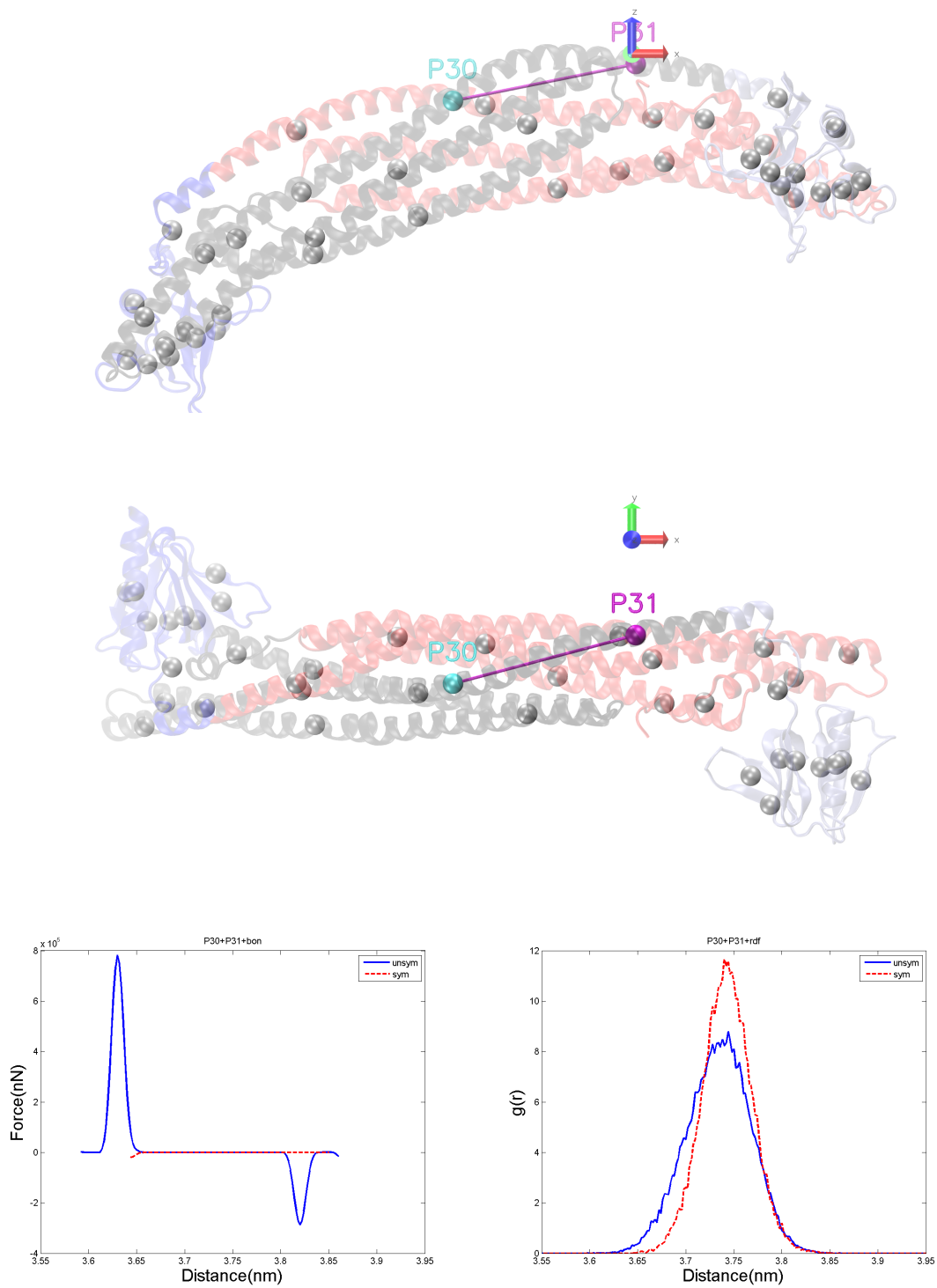
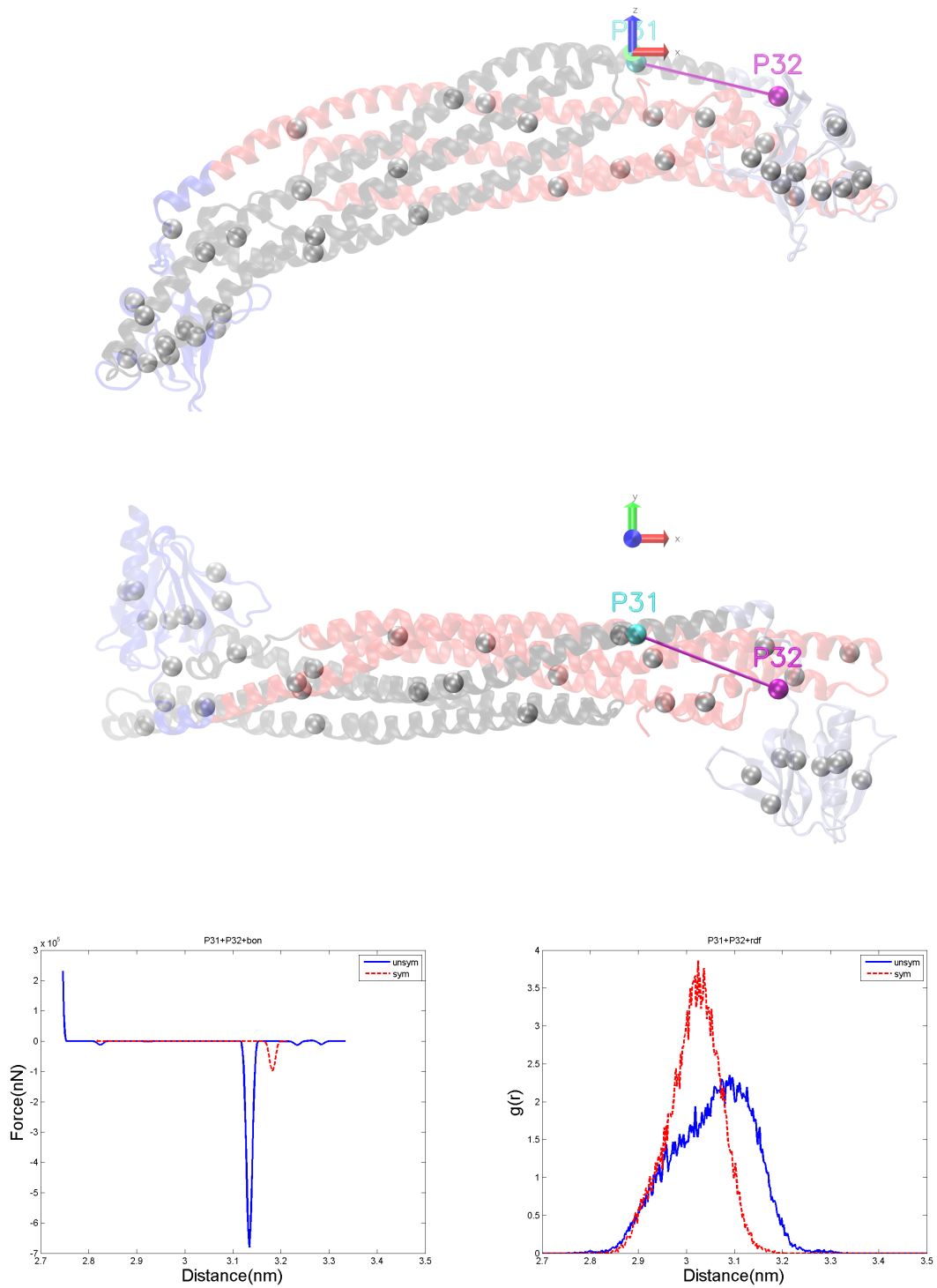
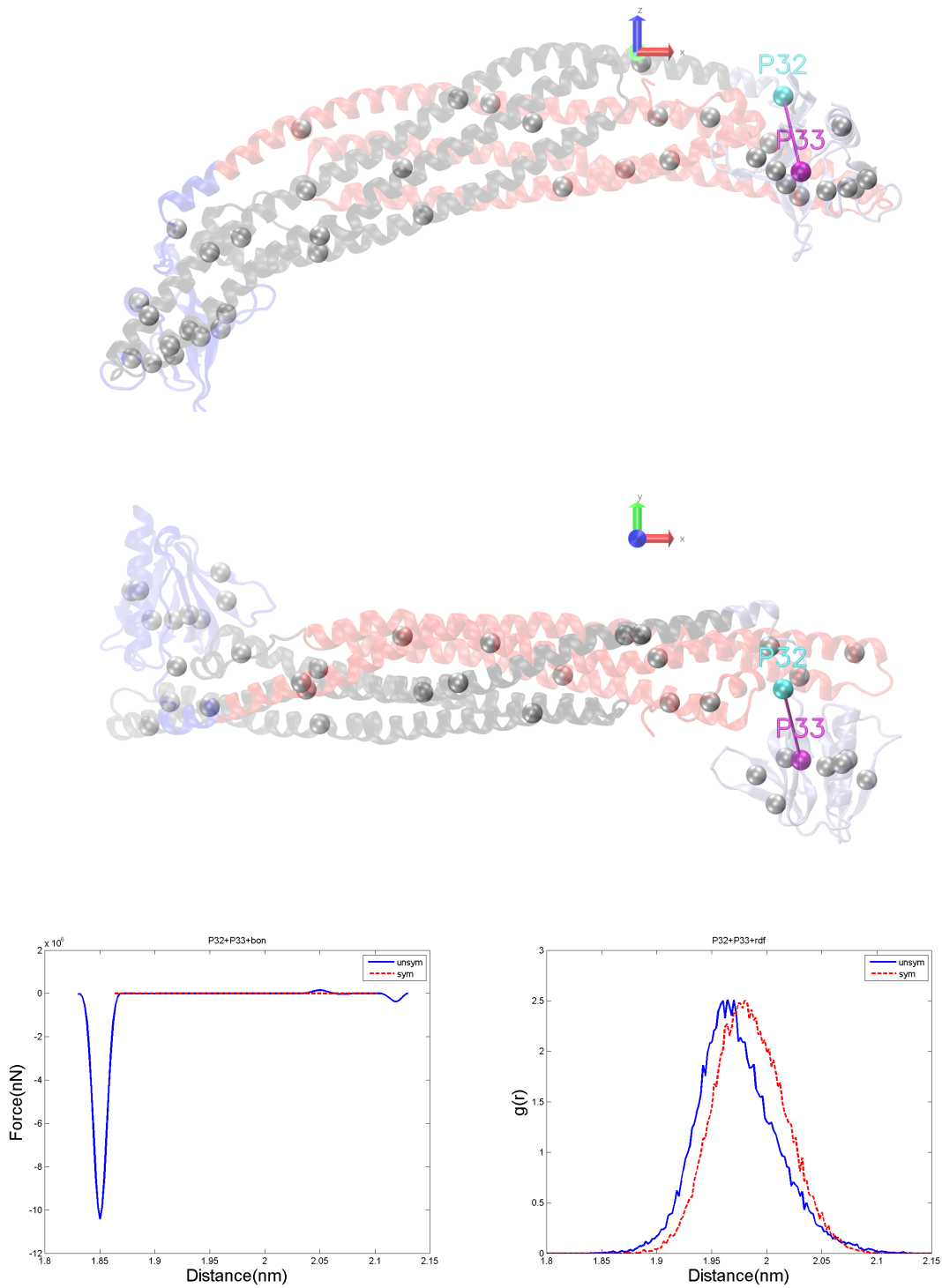


Figure 30. Force-matching results of P30+P31 with positions in CG model and RDF.



**Figure 31. Force-matching results of P31+P32 with positions in CG model and RDF.**



**Figure 32. Force-matching results of P32+P33with positions in CG model and RDF.**



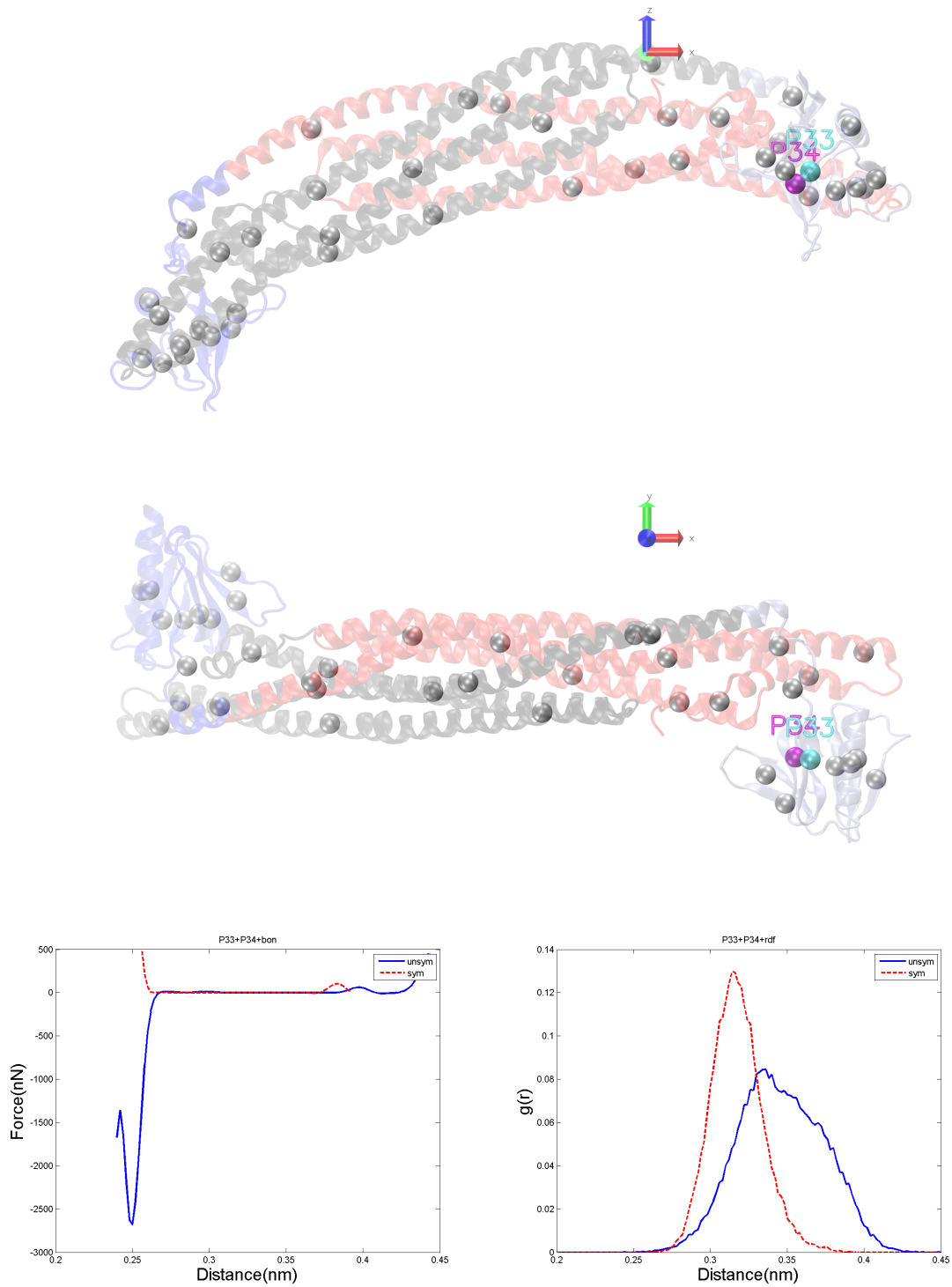


Figure 33. Force-matching results of P33+P34 with positions in CG model and RDF.

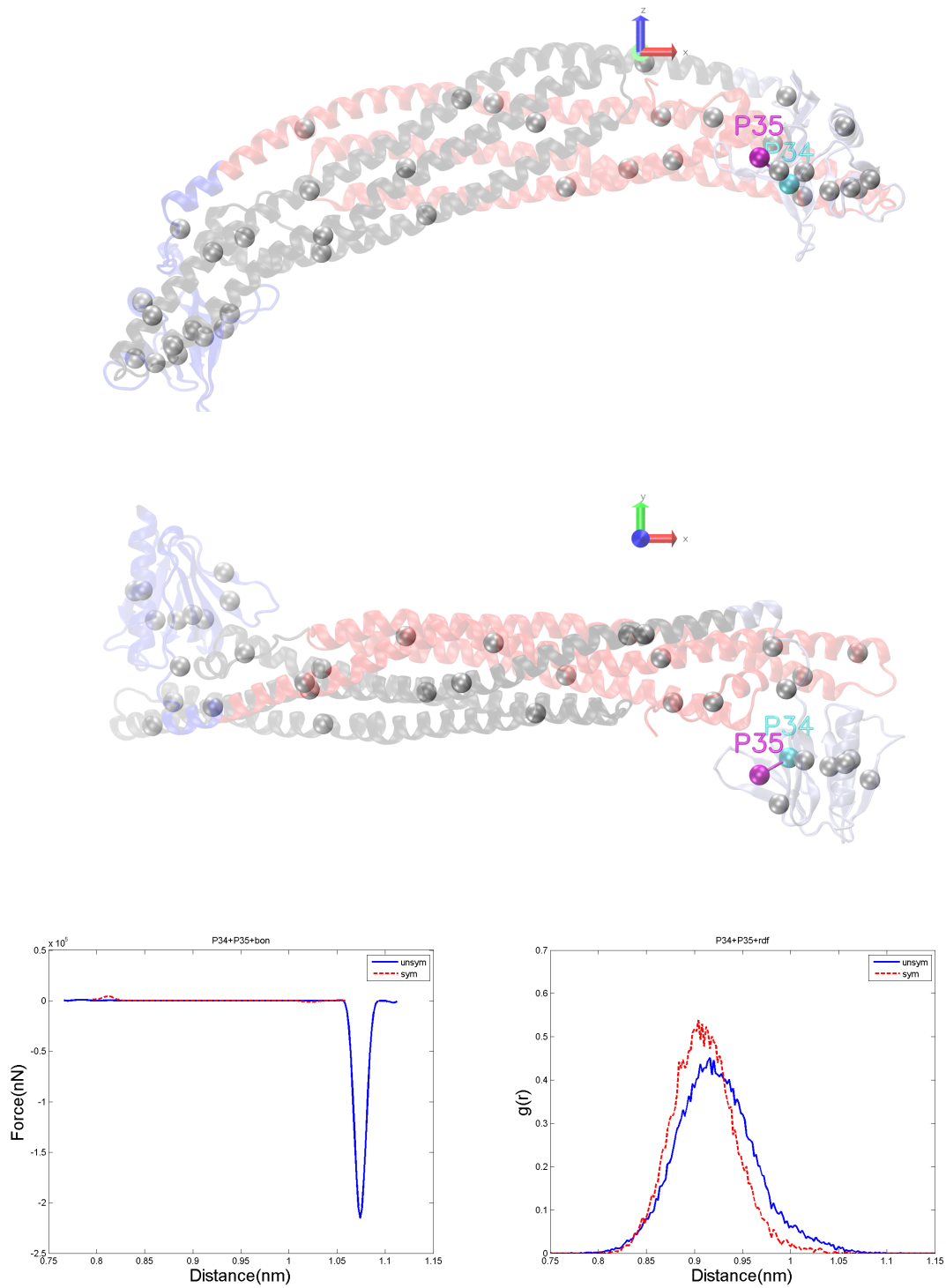
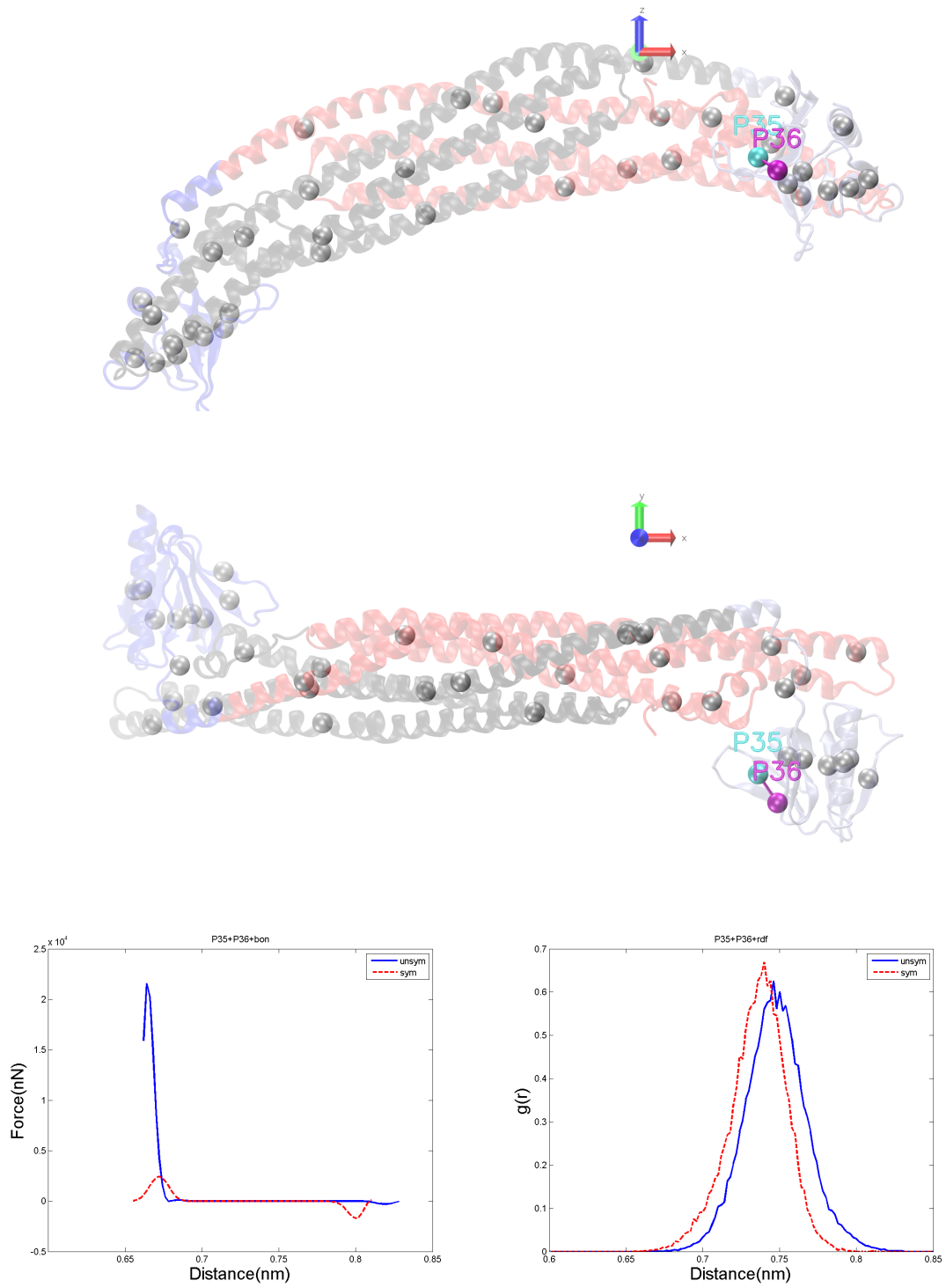
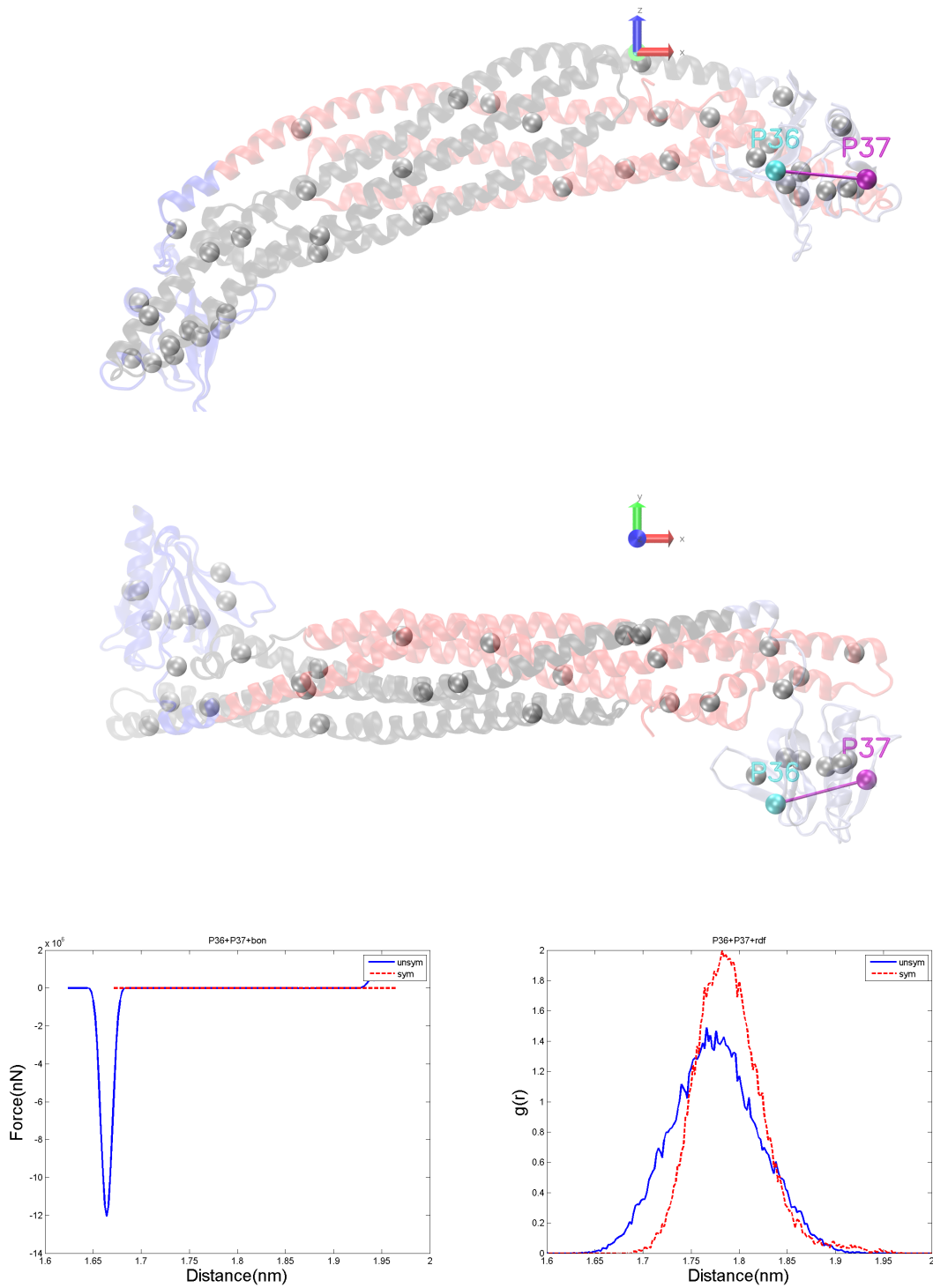


Figure 34. Force-matching results of P34+P35 with positions in CG model and RDF.



**Figure 35. Force-matching results of P35+P36 with positions in CG model and RDF.**



**Figure 36. Force-matching results of P36+P37 with positions in CG model and RDF.**

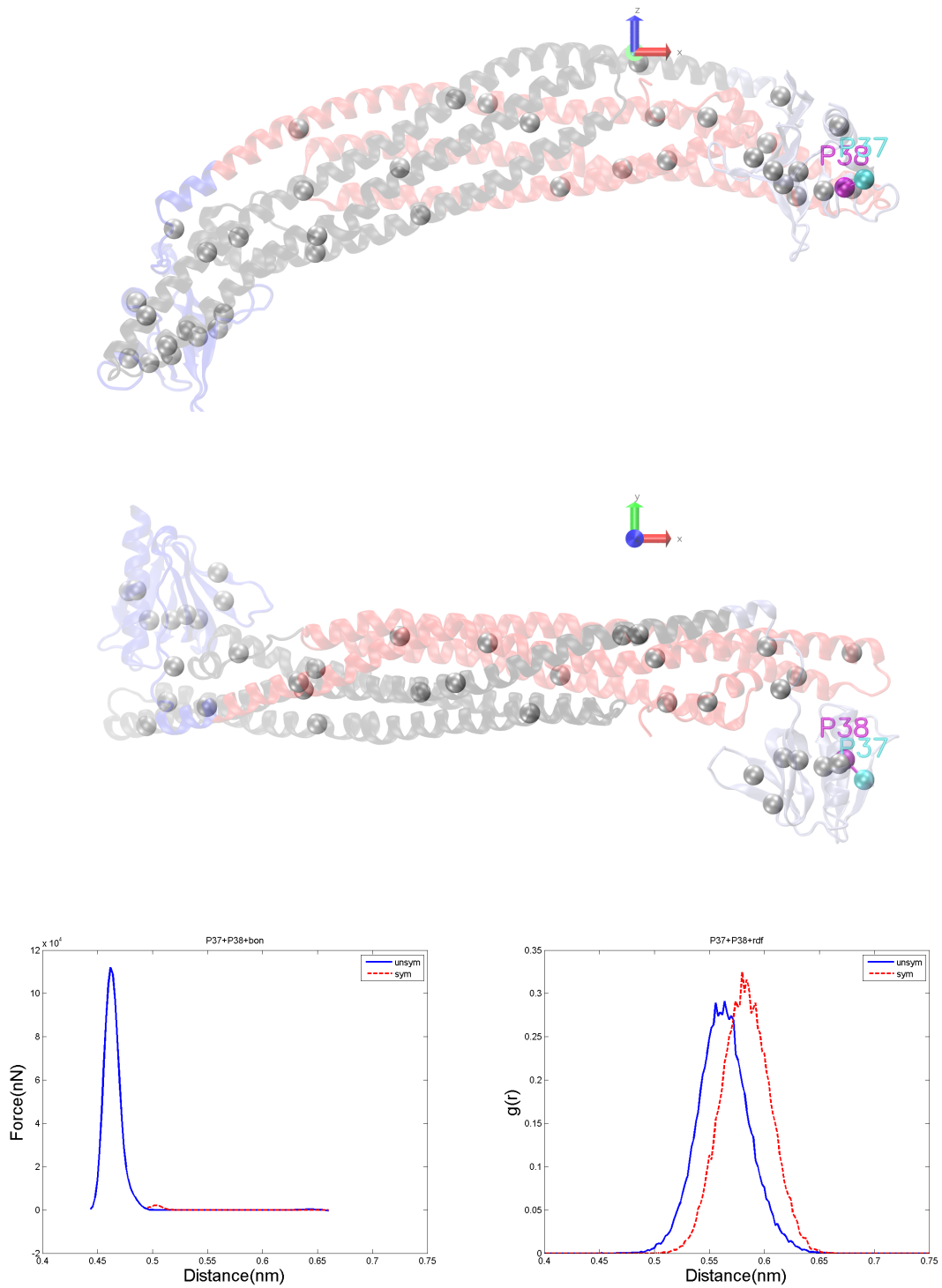


Figure 37. Force-matching results of P37+P38 with positions in CG model and RDF.

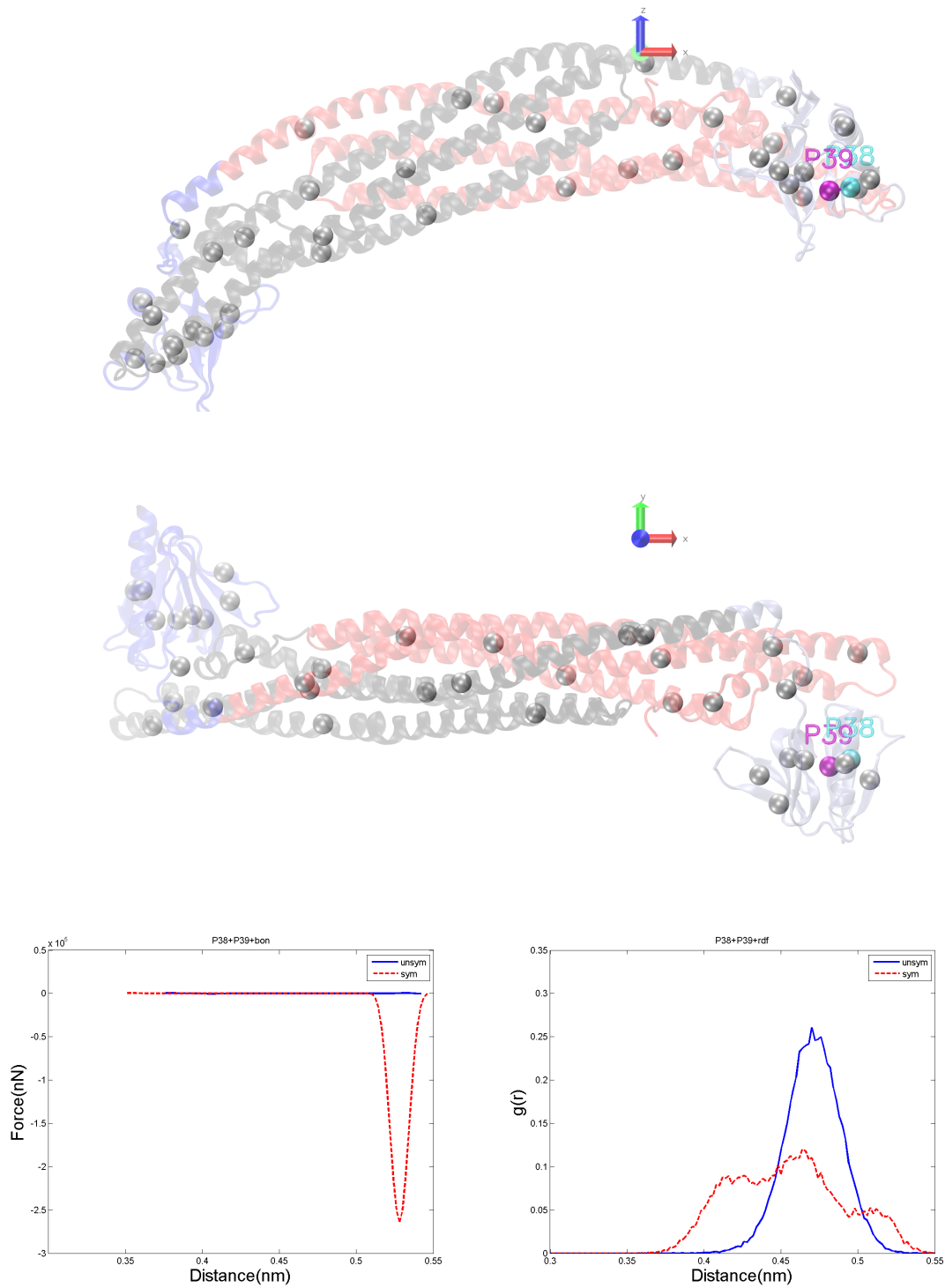


Figure 38. Force-matching results of P38+P39 with positions in CG model and RDF.

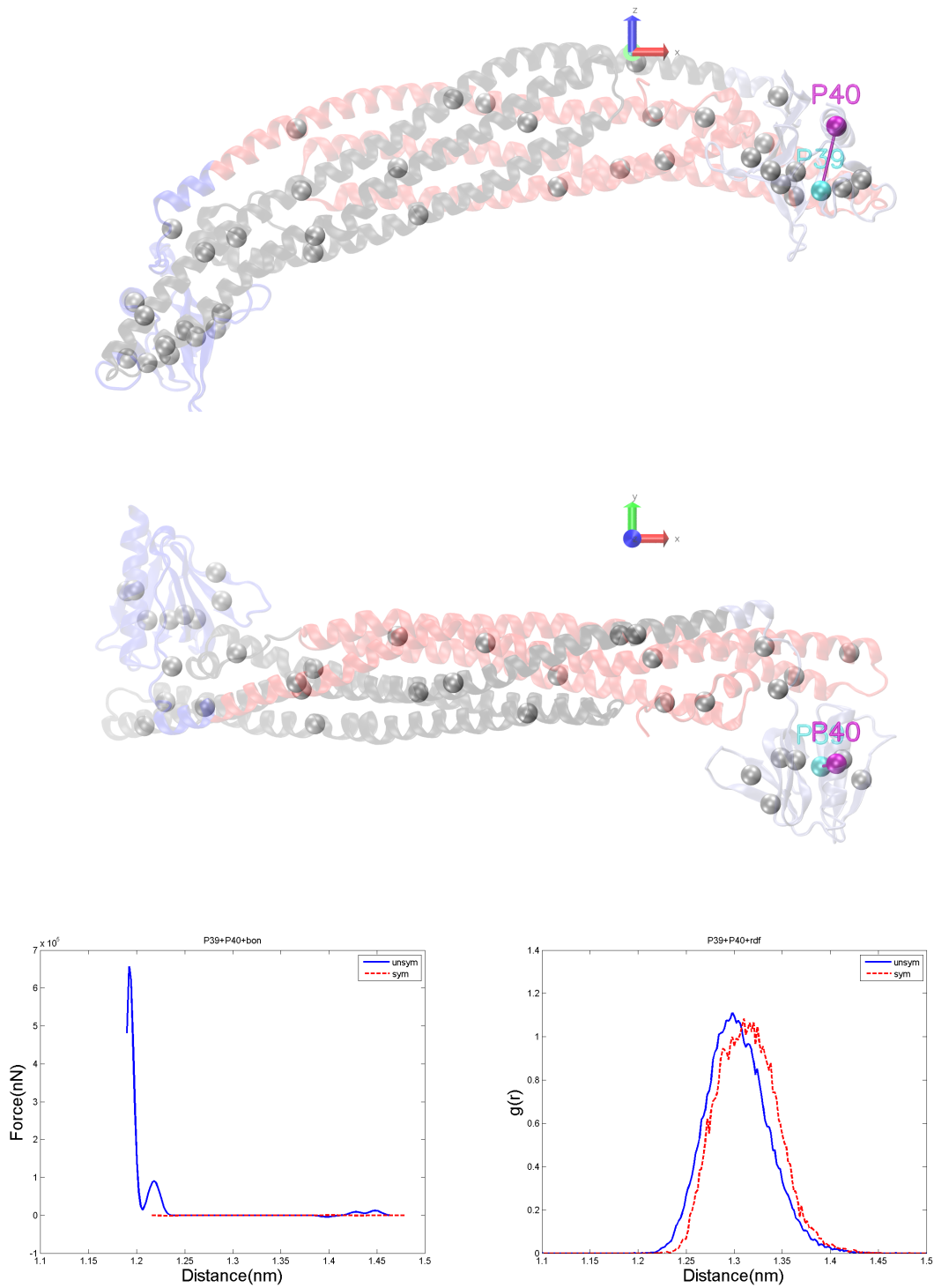


Figure 39. Force-matching results of P39+P40with positions in CG model and RDF.