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| **No.** | **Topic** | **URLs** |
| 1 | Ion exchange chromatography (IEC) | <https://www.youtube.com/watch?v=PVvpEKeOzEM> |
| 2 | Size exclusion chromatography (SEC) | <https://www.youtube.com/watch?v=PVvpEKeOzEM> |
| 3 | Affinity chromatography (AC) | <https://www.youtube.com/watch?v=PVvpEKeOzEM>  <https://www.youtube.com/watch?v=8_7cdfNO7OY> |
| 4 | Immobilized metal affinity chromatography (IMAC) | <https://www.youtube.com/watch?v=JFLkymmLdd0> |
| 5 | Hydrophobic interaction chromatography (HIC) | <https://www.youtube.com/watch?v=aqO-p8terxY> |
| 6 | Normal-phase chromatography (NPC) | <https://www.youtube.com/watch?v=ZN7euA1fS4Y> |
| 7 | High-pressure liquid chromatography (HPLC) | <https://www.youtube.com/watch?v=PVvpEKeOzEM>  <https://www.youtube.com/watch?v=ZN7euA1fS4Y> |
| 8 | Principle of sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) | <https://www.youtube.com/watch?v=PVvpEKeOzEM>  <https://www.youtube.com/watch?v=On_ZotdZexI> |
| 9 | Stages of protein purification | <https://www.youtube.com/watch?v=kzuPq7bdO0E> |
| 10 | Mass spectrometry (MS) | <https://www.youtube.com/watch?v=PVvpEKeOzEM>  <https://www.youtube.com/watch?v=RuwbeA22rew>  <https://www.youtube.com/watch?v=DyxiJuR7c6w> |
| 11 | Fourier-transform infrared spectroscopy (FTIR) | <https://www.youtube.com/watch?v=_BlEOZiAH94> |
| 12 | Nuclear magnetic resonance (NMR) | <https://www.youtube.com/watch?v=B0kM8nSdv_0>  <https://www.youtube.com/watch?v=Xt0HTuaFQwo> |
| 13 | Spectrophotometry | <https://youtube/qbCZbP6_j48> |
| 14 | Metabolism of proteins | <https://www.youtube.com/watch?v=aE06xHzPlJ0>  <https://www.youtube.com/watch?v=K3rVr_SfXo8> |
| 15 | Introduction to carbohydrates | <https://www.youtube.com/watch?v=jQi84TnstI4>  <https://www.youtube.com/watch?v=LeOUIXbFyqk> |
| 16 | Metabolism of carbohydrates | <https://www.youtube.com/watch?v=DQ-tUjfFet4> |
| 17 | Ammonium sulfate precipitation | <https://www.youtube.com/watch?v=TIMGH2z1eh4> |
| 18 | Qualitative analysis of carbohydrates (Lab) | <https://www.youtube.com/watch?v=ojhdTFmkY1c> |
| 19 | Qualitative analysis of proteins (Lab) | <https://www.youtube.com/watch?v=OsdhNtNNNds> |