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WEEK 5 Multiome   
  
  
**1. Why is transcriptomics used as a cornerstone to the different multiome technologies?**

Transcriptomics is fundamental to various multiome technologies because it offers an immediate view of the genes being expressed within cells at any specific time. This is essential as it sheds light on the active genetic instructions and their translation into proteins, giving insights into cellular functions and responses in different environments or pathological conditions.

**2. Does focusing on single cells within the context of multiomic data provide a complete picture of biological processes, or are there important aspects that this approach might miss?**

Analyzing single cells within multiomic data might not give a fully comprehensive understanding of biological processes. It often overlooks vital elements such as the interactions between cells, the structure of tissues, and the influence of external signals. These factors are crucial for a complete grasp of the intricate biological systems, making the integration of various omics data at the single-cell level a complex yet incomplete solution at present.

**3. How might the future of multiomic single-cell technology contribute to our understanding of complex biological phenomena?**

The advancement of single-cell multiomic technologies is set to revolutionize our comprehension of intricate biological systems, particularly in relation to disease. It allows for a deeper investigation into the variability among cells within tissues, paving the way to uncover new biomarkers, targets for therapy, and understanding the underlying mechanisms of diseases and resistance to treatments. Moreover, it could enhance our grasp of how individual cells develop and contribute to the formation of complex life forms.