Example questions Basics of Cloning

What are the components of an expression vector for high-level protein expression?

What is the substrate of a DNA polymerase?

What is proofreading (of a DNA polymerase)?

Which cofactors does a DNA ligase require?

How does Gibson Assembly work?

Which methods can be used to purify a particular protein from cellular extracts? Explain one in detail.

What is the principle of ammonium sulphate precipitation?

Which biological components are required to make a protein? Which of those can I use/manipulate to accept unnatural amino acids?

Which molecule(s) enable(s) Sanger sequencing? What is the difference to Illumina sequencing?

What distinguishes Next Generation from Third Generation sequencing?

How can 5-methyl-deoxycytidine be sequenced? And what about 5hmC?

How does SMRT sequencing distinguish adenosine from N6-methyladenosine?

How can you search for unknown interacting proteins (several possible answers)?

How can you confirm a newly identified interaction?

How does a proximity ligation assay (PLA) work?

Which methods can be used to ionize biomolecules (best) in mass spectrometry? Explain their function.

What is MS²?

Which methods enable high-density synthesis of individual oligonucleotides on surfaces?

How can erroneous oligonucleotides be identified and removed from a pool (dial-out)?