

Question Guideline	Example Question
<i>Why did you choose these specific statistical methods? What assumptions underlie the statistical tests you have selected, and how do they interact with your presumptive data set?</i>	Why did you select two-factor ANOVA for analyzing your gene expression data? Is that an appropriate test for that data set?
<i>How did you determine the sample size for your proposed experiments?</i>	How did you decide that $n = 6$ is a sufficient sample size for your mouse studies?
<i>What method are you using to quantitatively analyze your results? What is your justification for choosing that method?</i>	Why did you use linear regression to analyze your data?
<i>What is the expected order of magnitude of the response you are measuring, and are you confident that your measurement technique is sufficiently sensitive to measure the response? If so, why?</i>	How much FGF are you expecting that your cells will secrete or produce? And how big of a difference do you expect to see between your control and treated cells? Will you be able to resolve those differences with western blot?
<i>What are the assumptions made in your mathematical model, and why are those assumptions justified or appropriate?</i>	Could you explain why you are modeling bone as a poroelastic material in your finite element model? What are the main tenets of poroelasticity?
<i>What alternative methods / approaches could you have proposed to answer the same question? Why did you not choose those methods?</i>	Why did you select poroelasticity and not some other constitutive relation for bone in your finite element model? What other options did you consider, and why did you opt to discard them?
<i>Your hypothesis is predicated on <some underlying physical principle>. Please explain why that hypothesis makes sense based on your understanding of that physical principle.</i>	You state that you are expecting a particular release kinetic in your drug delivery system. Can you explain that vis a vis diffusion and the particular chemistry you are using?
<i>What is the expected size of the response you are measuring? Can you justify your</i>	You are predicting a pretty large shift in resonant frequency in your ultrasound contrast agents. Can you provide a

<p><i>expectation with <some underlying physical principle>? If so, please outline your justification.</i></p>	<p>justification based on your understanding of the physics of resonance and how these bubbles work?</p>
<p><i>What physical principles influence the system you are studying? Please outline how one important principle quantitatively affects your system.</i></p>	<p>Could you please explain why fluid flow is going to generate the concentration gradient of PDGF that you are describing?</p>
<p><i>How does the measurement technique you are using work? Based on the fundamentals of this technique, why is it well-suited to answer the question you are asking?</i></p>	<p>How does tapping mode for an atomic force microscope work? Why is tapping mode appropriate for what you are trying to measure?</p>
<p><i>What are the biological principles that influence the system that you are studying?</i></p>	<p>You are trying to increase vascularization of tissue engineering scaffolds. What are the primary cells and factors that regulate angiogenesis in normal tissue repair?</p>
<p><i>What is the physiological/clinical relevancy of your proposed experiments?</i></p>	<p>You are proposing to investigate the response of chondrocytes to mechanical loading. What kinds of forces does cartilage experience in normal everyday situations (walking, running, etc)? How does your proposed mechanical loading regimen relate to physiological conditions?</p>
<p><i>What is the gap in literature or unmet clinical need that your project addresses?</i></p>	<p>How have other researchers attempted to treat rheumatoid arthritis, and how is your proposed strategy better / how does it generate knowledge that is not yet known?</p>