

Questions/Main Ideas	Notes
<p><b>What is chemical biology?</b></p> <p><b>What is the difference between chemical biology and biochemistry?</b></p>	<p>DEF: using chem to advnce molecular undrstndng of bio at the level of atoms and bonds. Also, uses technqes from bio to adv. Chemistry Ex. Using molecular bio technqes to devlp libraries of chemicals</p> <p>REVIEW of 2 parts:</p> <ul style="list-style-type: none"> <li>- Using technqes frm chem to study bio</li> <li>- Using technqes frm bio to solve prblms in chem</li> <li>- <u>Both at atoms and bonds level</u></li> </ul> <p>! == Biochemistry = uses technqes in chem, but look at molecule level, not atomic</p>
<p><b>Who was the first chemical biologist? What was his contribution to chemical biology?</b></p> <p><b>Who was Friedrich Woehler? What was his contribution to chemical biology?</b></p>	<p>Ex of chem bio advances both chemistry and bio</p> <ul style="list-style-type: none"> <li>- Joseph Priestley (1733-1804) First chem biologist Isolates oxygen and other gases Used the chemicals to study bio Tested to see what gases mice can live in (they could live in O<sub>2</sub> – used latest chemistry technqes to study respiration) Had his house burned by a mob (set a tradition of independent thinkers who do not mind upsetting the masses)</li> <li>- Sir Humphrey Davy (1778-1829) Biological characterization</li> <li>- Friedrich Woehler (1828) Perhps the most imprt exper in chem bio Young, in 20s Found that it is pssble to make chemicals that are normally found in living organisms by just using mineral sources; mixed silver cyanate a/ammonium chloride !! at that time, it was thought that living organisms had a different chem than non-living organisms</li> </ul>
<p>Summary:</p> <p>Chemical biology uses (1) techniques from chemistry to learn about biology and (2) techniques from biology to solve problems in chemistry. Unlike biochemistry, chemical biology looks only at the atomic level, at atoms and bonds. Joseph Priestly is the father of chemical biology. He isolated gases and then used these chemicals to study respiration in mice. Friedrich Woehler discovered that organic chemicals could be created from inorganic materials.</p>	

**Class Notes**Topic: *What is Chemical Biology?*

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Listening and Note-taking Practice 2

Class: Introduction to Chemical Biology 128

<b>Questions/Main Ideas</b>	<b>Notes</b>
<p><b>What are the two step in the evolutionary process?</b></p> <p><b>What is an example of how the concept of evolution can be applied to chemical biology?</b></p> <p><b>How does the idea of evolution simplify how we talk about chemical mechanims on earth?</b></p>	<p>Evolution – principle of chem bio</p> <ul style="list-style-type: none"><li>- evol simplifies knowledge</li><li>- guides experimental design</li><li>- Charles Darwin articulated evol 150 yrs ago</li><li>- 2 steps of evol<ol style="list-style-type: none"><li>1. diversify – make diverse pop.</li><li>2. Select fittest</li></ol></li><li>- in chem bio – make large pop of molecules then do exper. to find the molecules that best fit a set of conditions</li><li>- helps organize knowledge and “evolve” molecules – all organisms hve evolvd from common ancestors<ol style="list-style-type: none"><li>ex. Ribosomes (a particle that synthesizes protein in living cells) can be studied in bacteria to learn how they work in humans</li></ol></li></ul> <p>This simplifies how we talk about how chemical mechanisms work in all life on the planet</p>
<p>Summary:</p> <p>Evolution is an important principle in chemical biology. There are two steps in chemical biology: (1) to make a diverse population and (2) select the fittest. It guides experimental design in Chem bio. It helps organize and simply knowledge. For example, because all organisms on earth have evolved from common ancestors. Ribosomes, a particle that synthesizes protein in all living cells, can be studied in bacteria in order to learn about how the process works in human beings.</p>	