Biochemistry 1

- send answer to iClicker Question 13A now.
- Macromolecules
  - introduction, buildup & breakdown
  - types & the big picture
  - lipids & cells
- iClicker Question 13B

⇒ Due in lab THIS week:
- Pre-lab for lab 05 (Lab Manual page 73 & on-line)
- VGL II lab report

Exam I: Monday 10/19 (info in Chemistry 2 handout)
- Last names starting with A through E: 11th floor of Healy Library
- Last names starting with F through Z: Lipke Auditorium (here)

(1 bonus point for going to right room)

Macromolecules · 1,000 → 1,000,000 + atoms

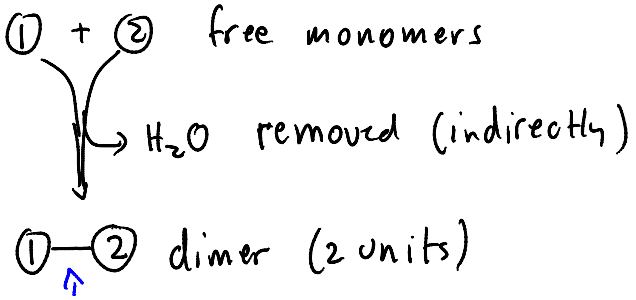
· do most of important body/cell functions

* polymers of simple "building blocks"

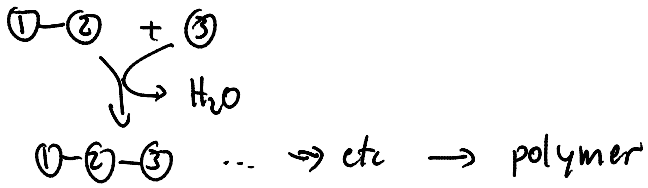
Polymers = "many units" units = monomers "single units"

ex. ① & ② "building blocks" monomers ~ lego bricks
small molecules 10-50 atoms

"building up" polymerization (chemically dehydration synthesis)



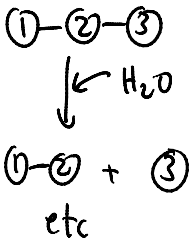
↳ covalent bond



* each step requires ① energy
② information (from genes)
③ specific "assemblers"

* sequence of monomers determines properties & function

breaking down = "hydrolysis" H_2O usually directly involved

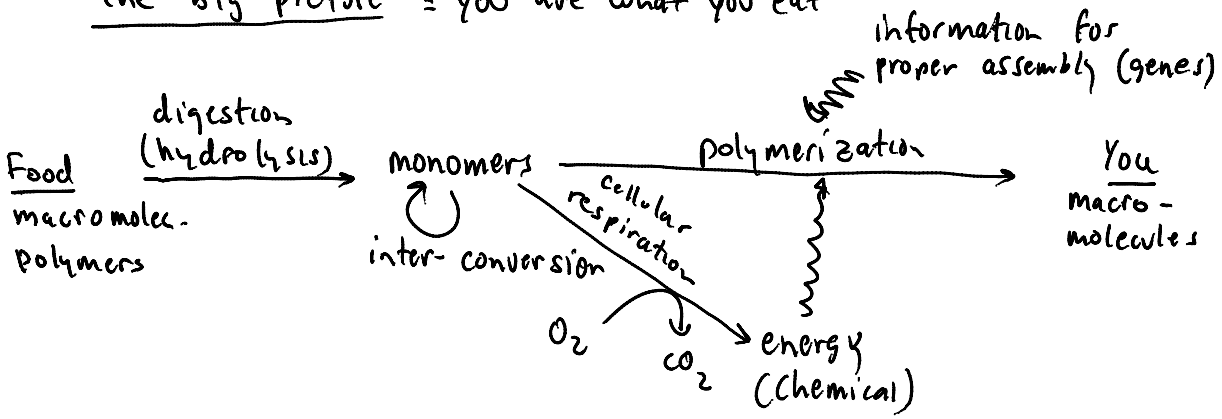


* no energy required
* no information required
* done by specific enzymes

Types of macromolecules in Bio 111 (rough #s)

You →			poly mers	corresponding monomer
80% H_2O				
20% stuff →	90% macromolecules →	55% protein		amino acid
		20% nucleic acid		nucleotide
		15% polysaccharide		sugar
		10% lipid		fatty acid
	10% misc small molecules (monomers, etc.)			

The "big picture" = you are what you eat

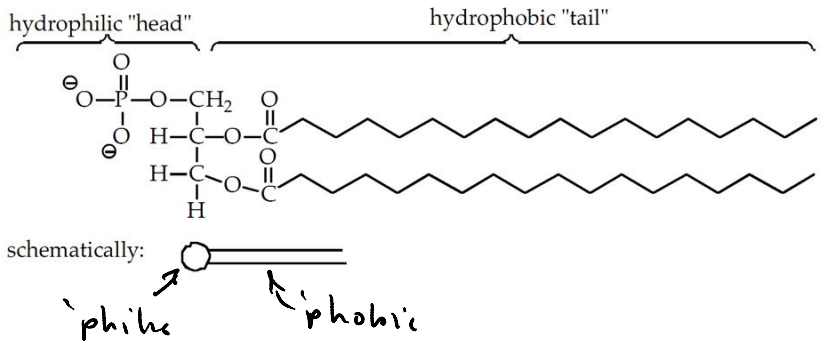


Lipids * small macromolecules

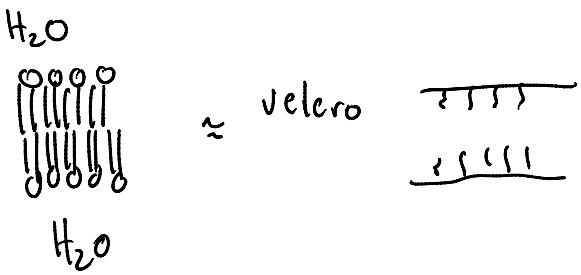
* stick together in large structures due to 'phobic effect

one important type: phospholipid

lipids a phospholipid

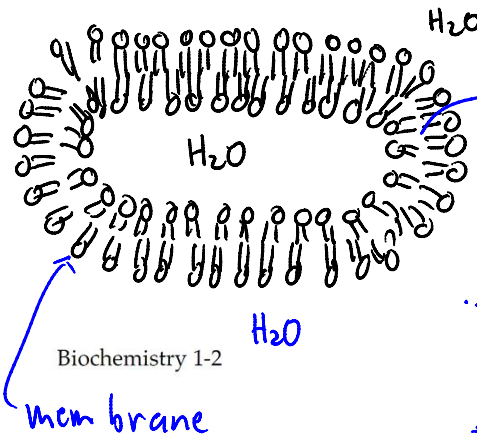


in water, 'phobic parts stick together to form phospholipid bilayer



Q: how to make exposed 'phobic edges "happy"?

A: make hollow sphere



'phobic core

∴ most H2O-soluble molecules can't pass through

∴ good for keeping molecules in/out

⇒ a cell