“Biochemical lab” #1

In a biological lab complex solution of different reagents are used. A typical reaction **buffer** is composed of:

10mM TrisHCL, pH7.5

200 mMNaCl

10mM $MgSO_4$

1mM EDTA

The buffer is not prepared by dissolving crystalline compounds in water.

It is prepared by mixing concentrated **stock solutions** of the reagents and diluting them with water. For example the lab could have:

a) 1M TrisHCL, pH7.5
b) 5M NaCl
c) 0.5M $MgSO_4$
d) 1M EDTA

Let’s assume we need 1 liter of the final reaction buffer as formulated in the beginning.

a) we need to dilute it 100 times, so we take 10 ml
b) we need to dilute it 25 times, so we take 40 ml
c) we need to dilute it 50 times, so we take 20 ml
d) we need to dilute it 1000 times, so we take 1 ml
e) we add water to 1 liter – 1000ml-(10ml+40ml+20ml+1ml)=1000ml -71ml=929ml

Homework October 22, 2017

In the lab there are solutions:

e) 1M TrisHCL, pH7.5
f) 5M NaCl
g) 0.5M $MgSO_4$
h) 1M EDTA

1. We need to make **1 liter** of buffer:

20mM TrisHCL, pH7.5

400 mM NaCl

20 mM $MgSO_4$

2 mM EDTA

How much of each component should we add:

a)
b)
c)
d)
e) water

2. We need to make **2 liters** of the same buffer

How much of each component should we add:

a)
b)
c)
d)
e) Water

3. We need to make 0.5 liters of the same buffer

How much of each component should we add:

a)
b)
c)
d)
e) water