# How I used Snapchat to reach beyond the lab

Rehman Ata

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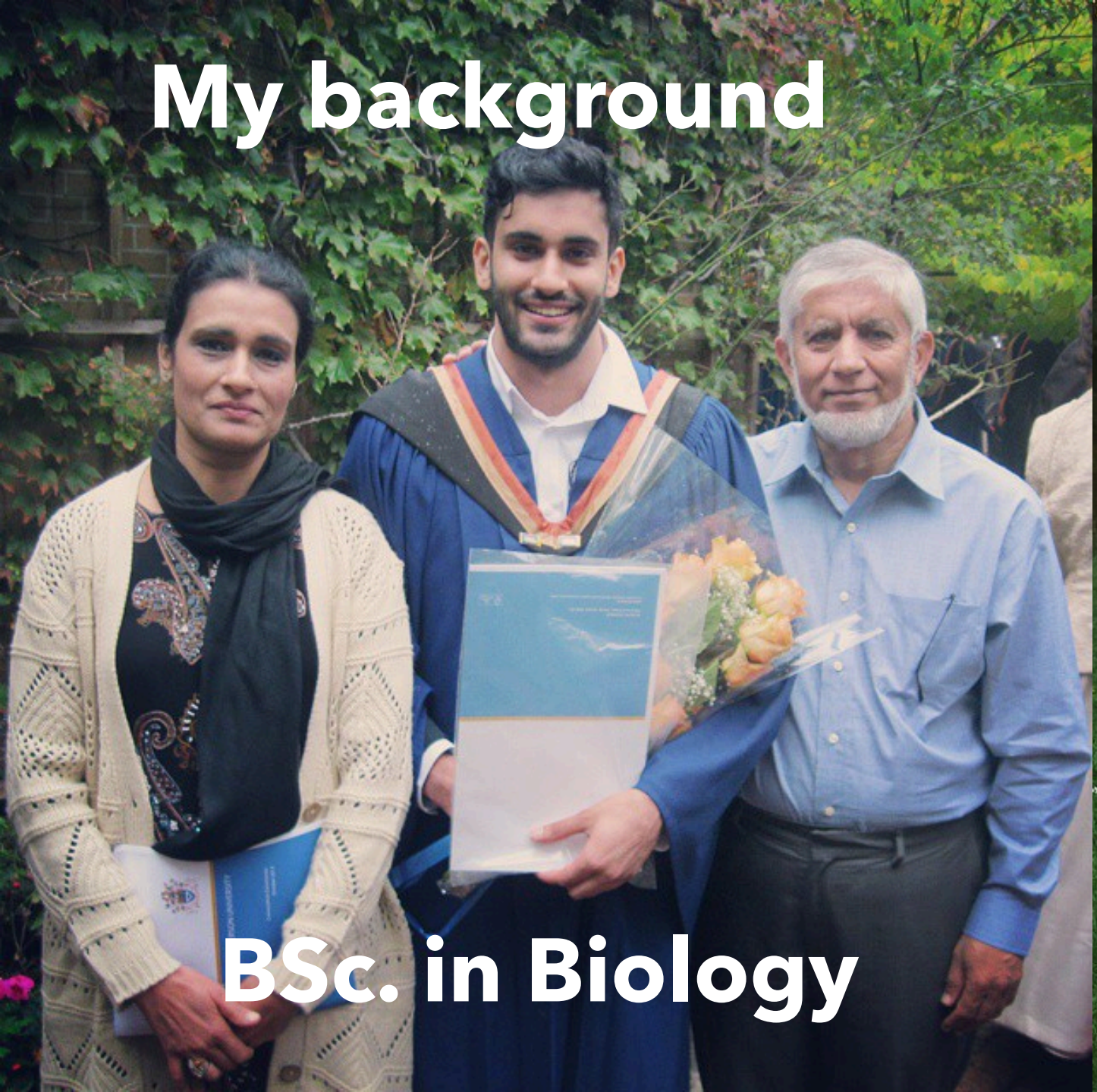
# My background



BSc. in Biology

MSc. in Molecular Science

# MSc. Side project: exploring Snapchat as an educational platform

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# Lab manuals are not so great

**Experiment 2**

**ISOLATION, CLONING AND TRANSFORMATION OF PLASMID DNA**

**Introduction**

Antibiotic resistance in bacteria may be carried on either the chromosome or on an extra chromosomal piece of DNA such as a phage or a plasmid. In this experiment you will be working with two plasmids that encode resistance to particular antibiotics. The plasmid pUC18 contains an ampicillin resistance gene and the plasmid pKan contains a kanamycin resistance gene.

The pUC plasmids are extremely useful for cloning, sequencing and expressing foreign genes in *E. coli*. They consist of the pBR322-derived ampicillin resistance gene and origin of DNA replication, ligated to a portion of the *lacZ* gene of *E. coli*. A DNA insert containing an array of unique restriction enzyme recognition sites has been introduced into the *lacZ'* (α-complementing) region of each of these plasmids. When introduced into a suitable *E. coli* host strain carrying a *lacZ* product that is able to complement the portion on the plasmid, the cells are able to make beta-galactosidase and produce blue colonies on plates containing the substrate, X-gal. Cloning DNA fragments into the Multiple Cloning Site inactivates the *lacZ* gene; therefore cells with these plasmids cannot make beta-galactosidase and therefore produce white colonies on the agar plates.

In this experiment the student will isolate plasmid DNA, clone the kanamycin resistance gene from pKan into the Multiple Cloning Site (MCS) of pUC18 (vector) and transform the new plasmid into the *E. coli* strain DH5α. This will produce a strain that is resistant to both ampicillin and kanamycin. The appearance of white colonies on X-gal plates after transformation should indicate the presence of the kanamycin gene inserted into the pUC18 vector. These colonies will then be streaked onto kanamycin/ampicillin (or carbenicillin) plates to verify the presence of the kan gene in the vector.

Note: Gene symbols are generally italicized, which helps clarify whether the writer is referring to a gene or to another entity that might be confused with a gene. Style for genes varies according to organism. Bacterial gene names are always written in italics: e.g. *lacZ* gene. (http://wwwnc.cdc.gov/eid/pages/scientific-nomenclature.htm).

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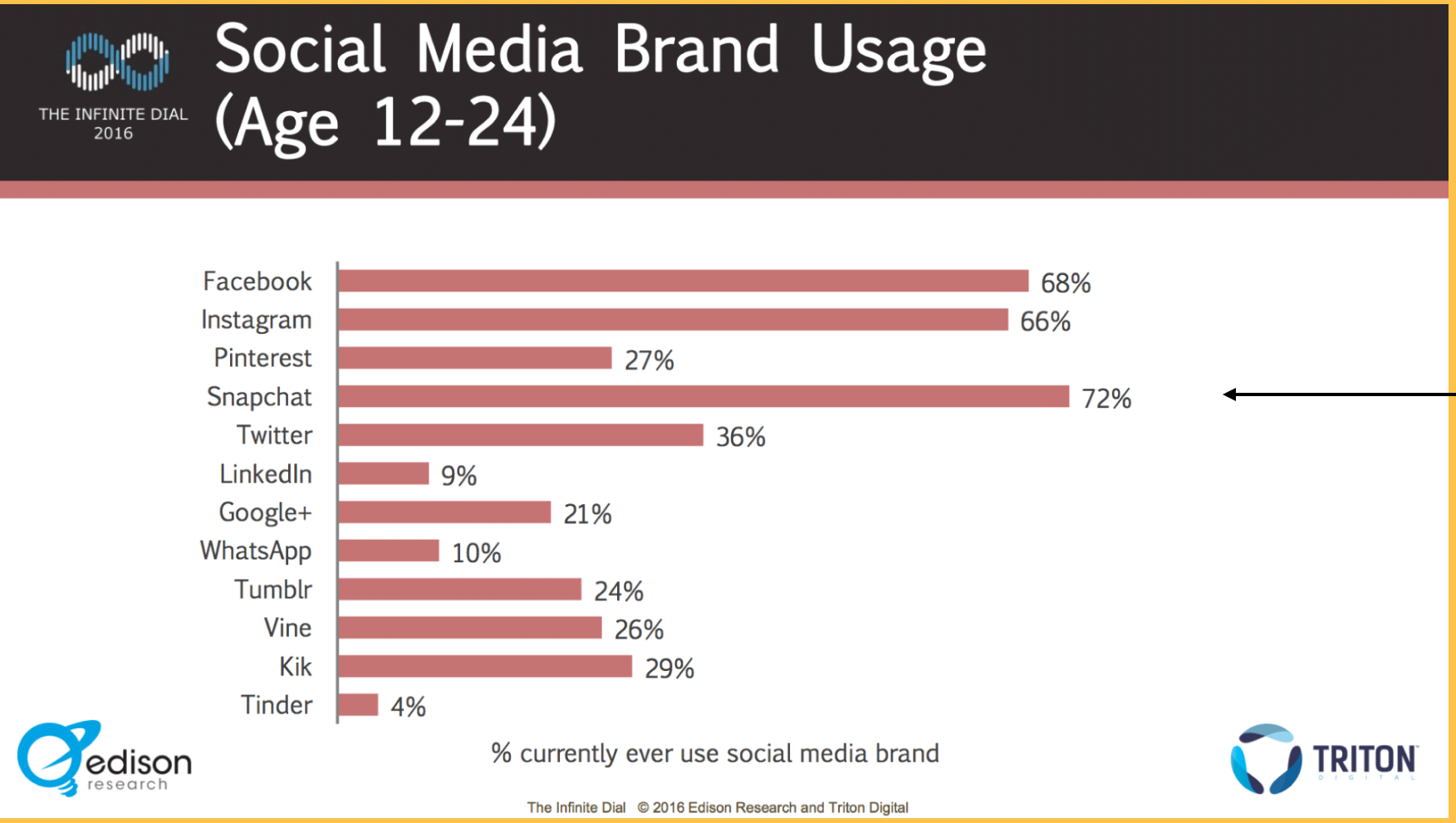
# Premise: Snapchat is a highly used application




**The most used application**

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# What happens if...

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Let's break down the pUC18 plasmid first.

# Attention = currency

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# The most effective ways to get attention is through pictures or videos

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# Figure out your motivations & passions for teaching

# What are your strengths?

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For me, I enjoyed being able to explain difficult concepts in different ways

This was married with a love for graphic animation

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# The cell surface proteome is dynamically regulated

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# Used a highly utilized platform & leveraged it for education

Snapchat: I used on a daily basis

After effects: spent 15 hrs/wk learning


# This was my process

1) Think back to what I struggled with
2) Talk to students
3) Create solution suited for student's need
4) Iterate as needed

# 1) Think back to what I struggled with

- BSc Biology
- Hated labs (until 4th year)

- Why?

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# 2) Talk to students

- Connect with students beyond the subject
- Constant open dialogue
- Questions : your most valuable resource
  - They are literally telling you what they are struggling with

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# 3) Create solution suited for student's need

- Lab manuals: not properly preparing students

- Create video that supplements the lab manual for biology labs

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# 4) Iterate as needed

- Listened to student feedback
- Track video views + other metrics
- Adapted content week by week

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# Secret:

No secret - a lot of work

But it was appreciated tremendously by students

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# Snap 101 guide

1) Do your students really need this?

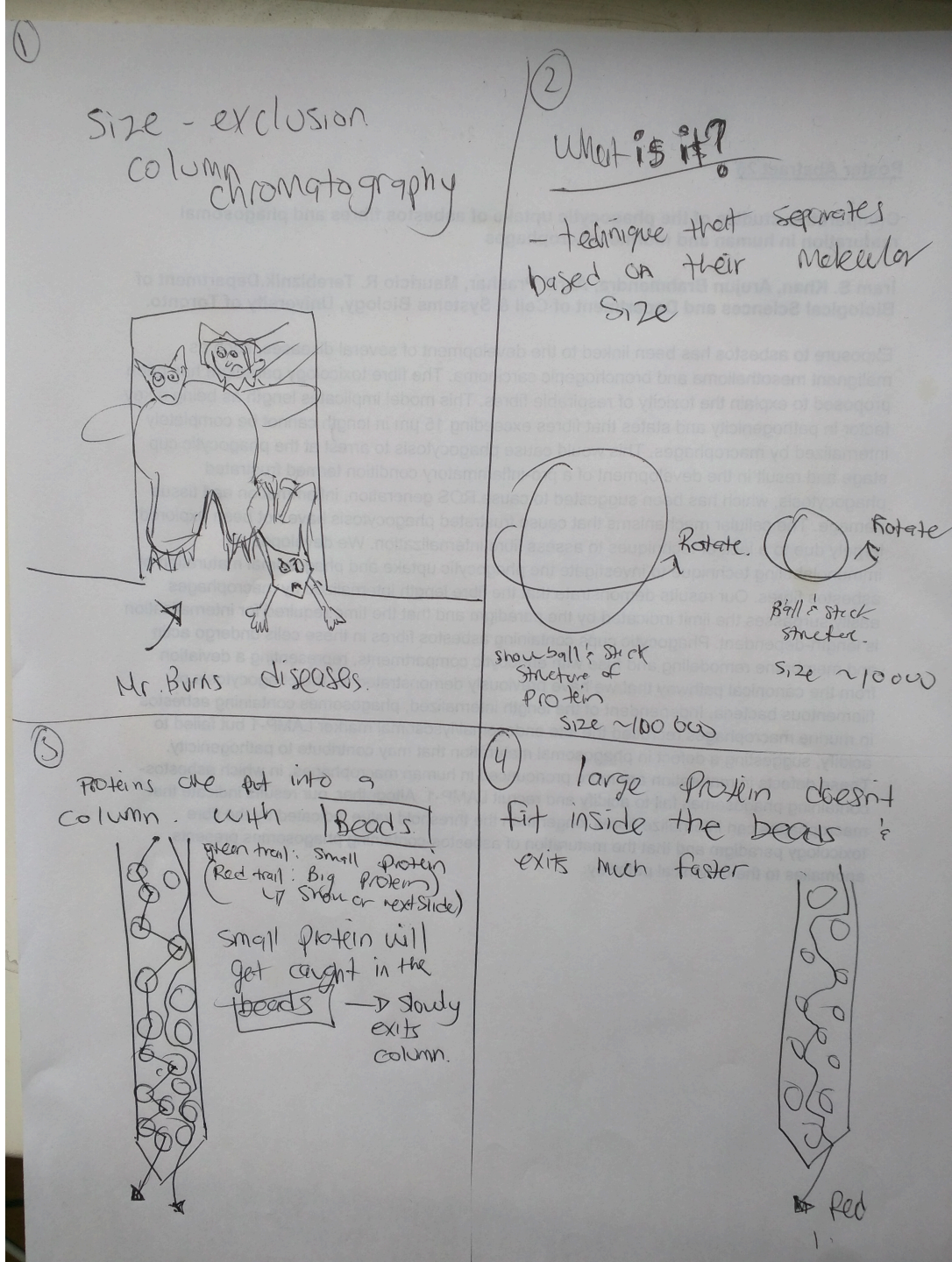
2) Create an account & Snap pictures/videos of important concepts during the lab

# Snap 101 guide

3) Keep them relevant, plan ahead!
   - sit down and write out the most important concepts

   "storyboard" the Story before hand

# Example storyboard



# Questions?

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Rehman Ata
Rehman@sara.lc