

THE MICHAEL SMITH LABORATORIES' TEACHER CONFERENCE



OCTOBER 19th, Michael Smith Building, 2185 East Mall, University of British Columbia.

This conference is free, and well suited for high school teachers interested in both the scientific and social contexts of subjects like genetics and biotechnology.

Registration is first come, first served, and done by contacting Dr. Joanne Fox at joanne@mssl.ubc.ca, subject heading "MSL teachers." Apart from your name and email address, please also leave the school and district you belong to. We expect good interest in this opportunity, so please register early to avoid disappointment as space is limited (we aim to host 40 to 75 teachers).

Program will run from 9:30am to 3:30pm and will include keynote talks by noted scientists in the life science field, as well as hands-on exercises in both wet lab and computational biology settings. A lunch break will be scheduled in, but note that lunch will not be provided. Full detailed program to be sent at a later date.

For more information about the Michael Smith Laboratories, please go to <http://www.mssl.ubc.ca>. For more information about the Advanced Molecular Biology Laboratory (the hosting teaching facility within the MSL, please go to <http://bioteach.ubc.ca>)

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*Social/cultural pervasiveness
(as accessed by google ranking)*

Paris Hilton 62,500,000

*Social/cultural pervasiveness
(as accessed by google ranking)*

Paris Hilton	62,500,000
Genetics	64,000,000

< 20%

> 80%

MORNING!

9:45 – 10:15 Dr. Phil Hieter, Director of the Michael Smith Laboratories. Phil is a celebrated yeast geneticist widely known for his work on the molecular workings of the centromere. His talk will be on the use of model organisms generally, and his yeast research specifically, in the advancement of life science research.

10:15 – 10:45 Dr. Don Riddle: Don's research focuses on the nematode, *Caenorhabditis elegans*, particularly as it relates to a stage of development known as the dauer larvae. This stage is a crucial decision point in the life cycle of the worm, especially under conditions of stress. As well, much of his work has had major implications in areas such as senescence, the study of longevity. Don plans to talk about life as an academic scientist in general and in doing so, will attempt to paint a realistic portrait of lab life.

10:45 – 11:00 BREAK

11:00 – 12:00 LAB EXERCISE: The group will be divided into two smaller groups, who will attend one of two lab sessions provided for the day, during this time period.

ACTIVITY ONE: Dr. Joanne Fox. "Bioinformatics 101 – The Human Genome Project"
In this interactive session, we'll cover the question, "What is Bioinformatics" and use free tools on the internet to visualize data from the human genome project. We'll discuss the relevancy of bioinformatics in your classroom, for your students, and in your own life.

ACTIVITY TWO: Dr. David Ng. "DIY Polymerase Chain Reaction on the cheap"
This one hour will be spent performing a straightforward human genomic isolation using kitchen supplies, as well as discuss how one can introduce the Polymerase Chain Reaction technique into your classroom setting within a reasonable budget.

12:00 – 1:30 LUNCH BREAK

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AFTERNOON!

1:30 – 2:00 Dr. Eric Lagally. Eric's research focuses on integrated microsystems, which can be thought of as "Labs on a chip." This field has wide ranging applications, especially from improving the analytical capabilities of existing technologies. His talk will discuss his work in general, and also on some his projects, which currently aim to use the technology for the easy and transportable detection of bacterial pathogens.

2:00 – 3:00 LAB EXERCISE: The group will again be divided into the same two smaller groups, and you will now attend the alternate activity.

3:00 – 3:30+ We'd like to invite all teachers to help discuss future plans for the activities that the Michael Smith Labs can strive to offer, both in the context as a fully functional molecular biology lab, but also in the context of being a facility well connected to other outreach initiatives in other scientific disciplines. In particular, we would like to see this conference expanded next year to include elements where teacher attendees can work towards the design and delivery of teaching resources. Anyway, ideas are appreciated at this session.



DIY PCR

DIY PCR

polymerase chain reaction

DIY PCR

basic chemistry

deep replication

macgyver-ism

DIY PCR

getting the DNA

amplifying the DNA

checking it out

DIY PCR

getting the DNA

amplifying the DNA

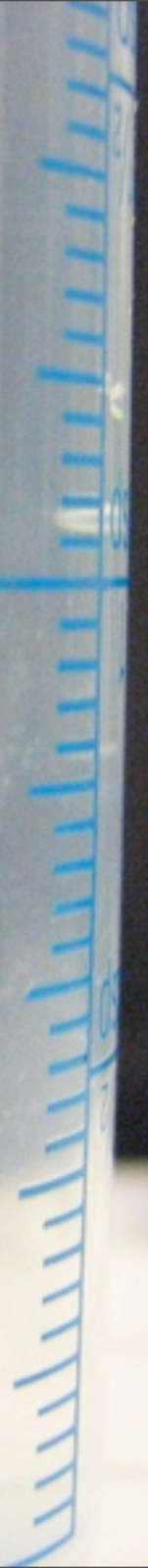
checking it out

Exacta-Med® Dispenser • www.

Made in Denmark

5 mL

1 2 3 4 5 6 7



DIY PCR

getting the DNA

amplifying the DNA

checking it out

replication

replication

breakfast of champions version



DNA pol III



helicase



primase



DNA pol I

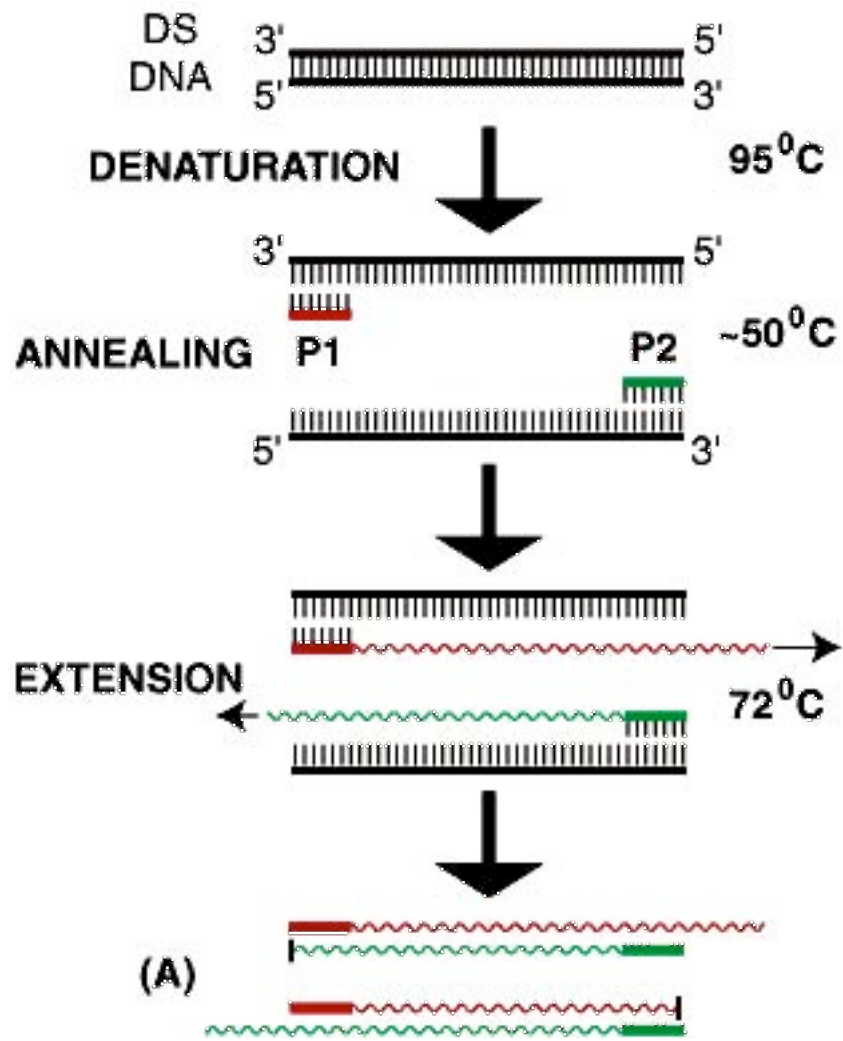


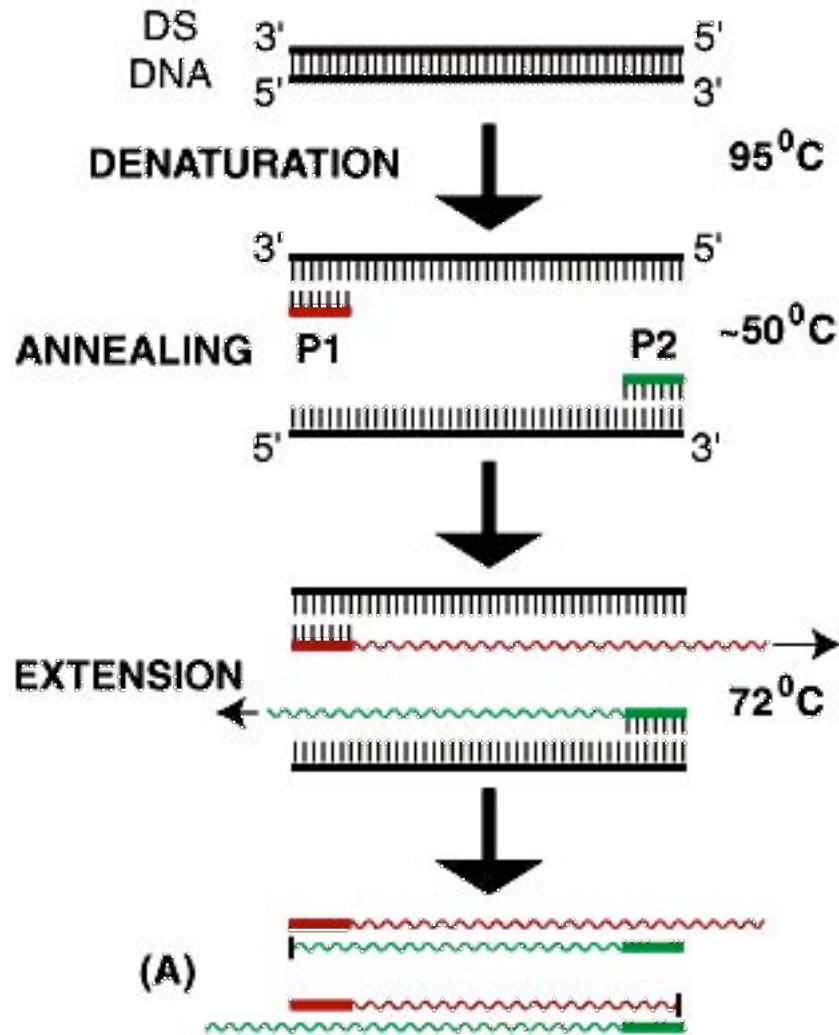
ligase



telomerase

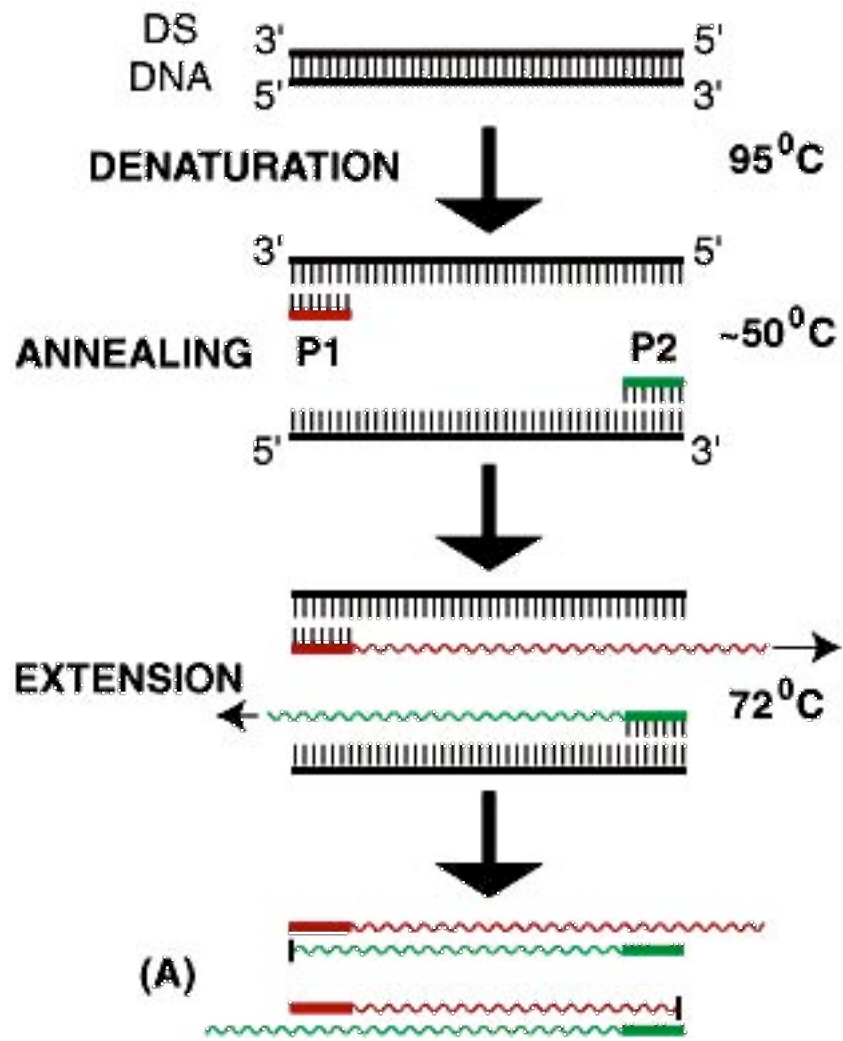






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~\$100 per 1000 tubes



~\$50 for 200 reactions



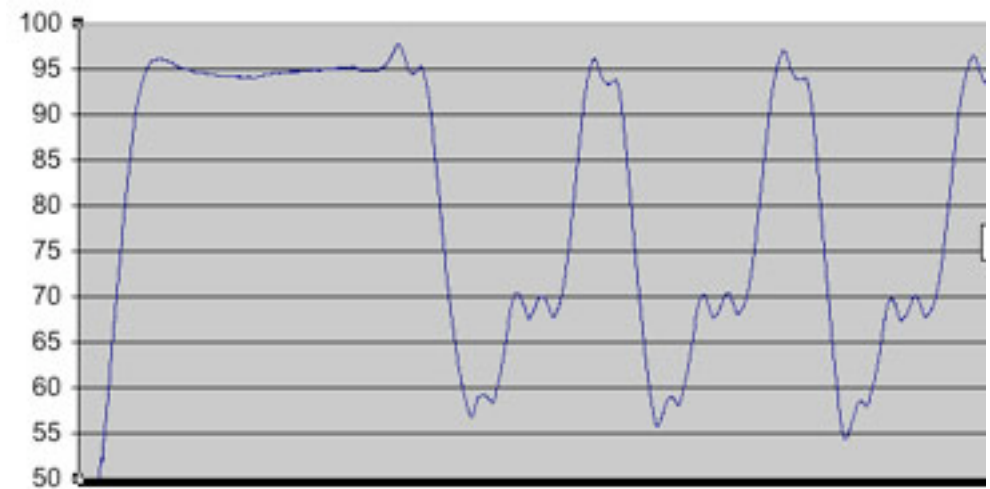
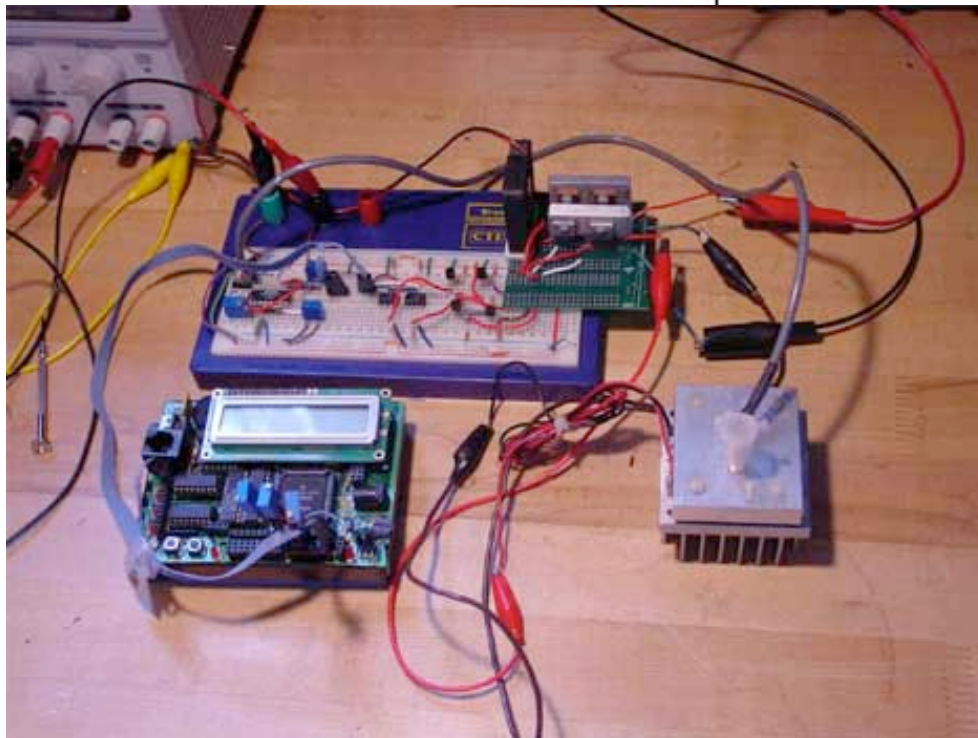
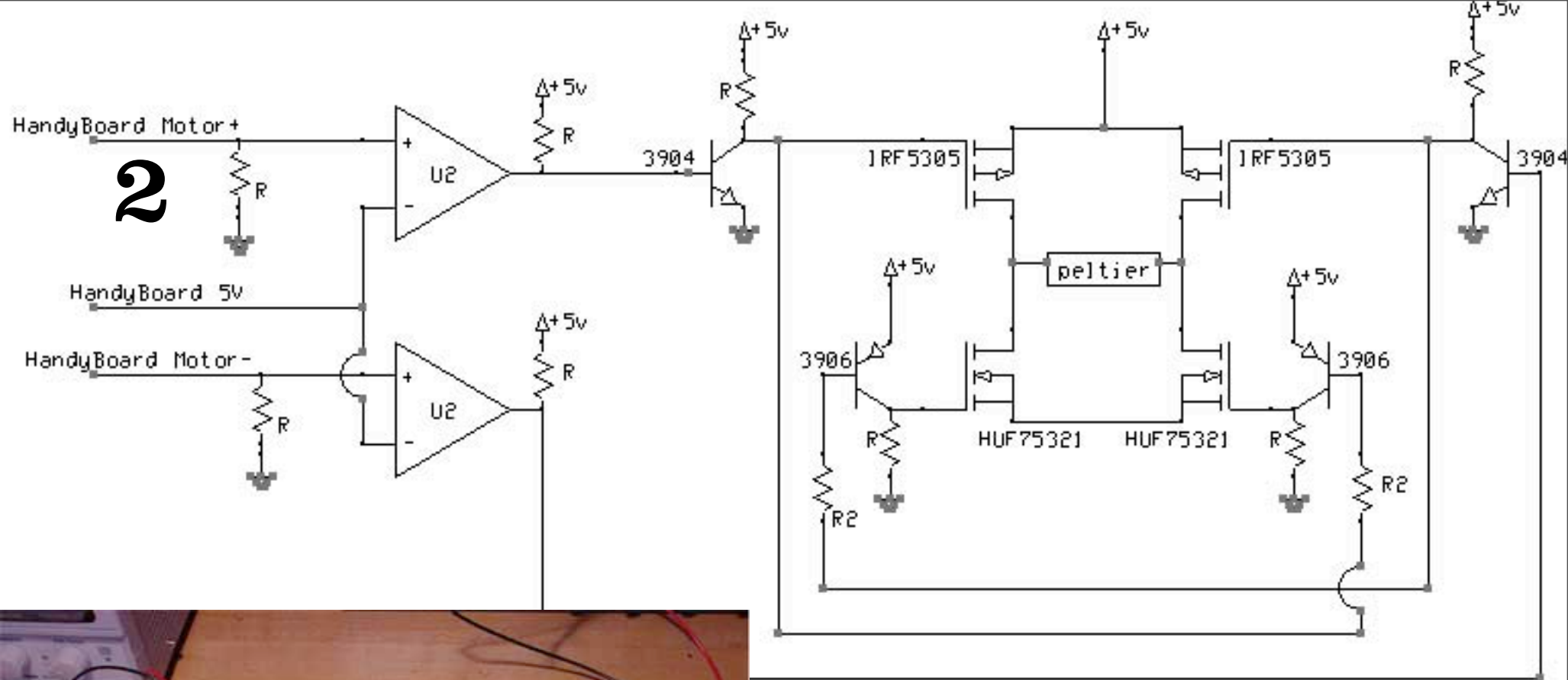
Invitrogen's Platinum Blue PCR Supermix
~\$125 for 100 reactions



~\$10 for all you'll ever need

1





3

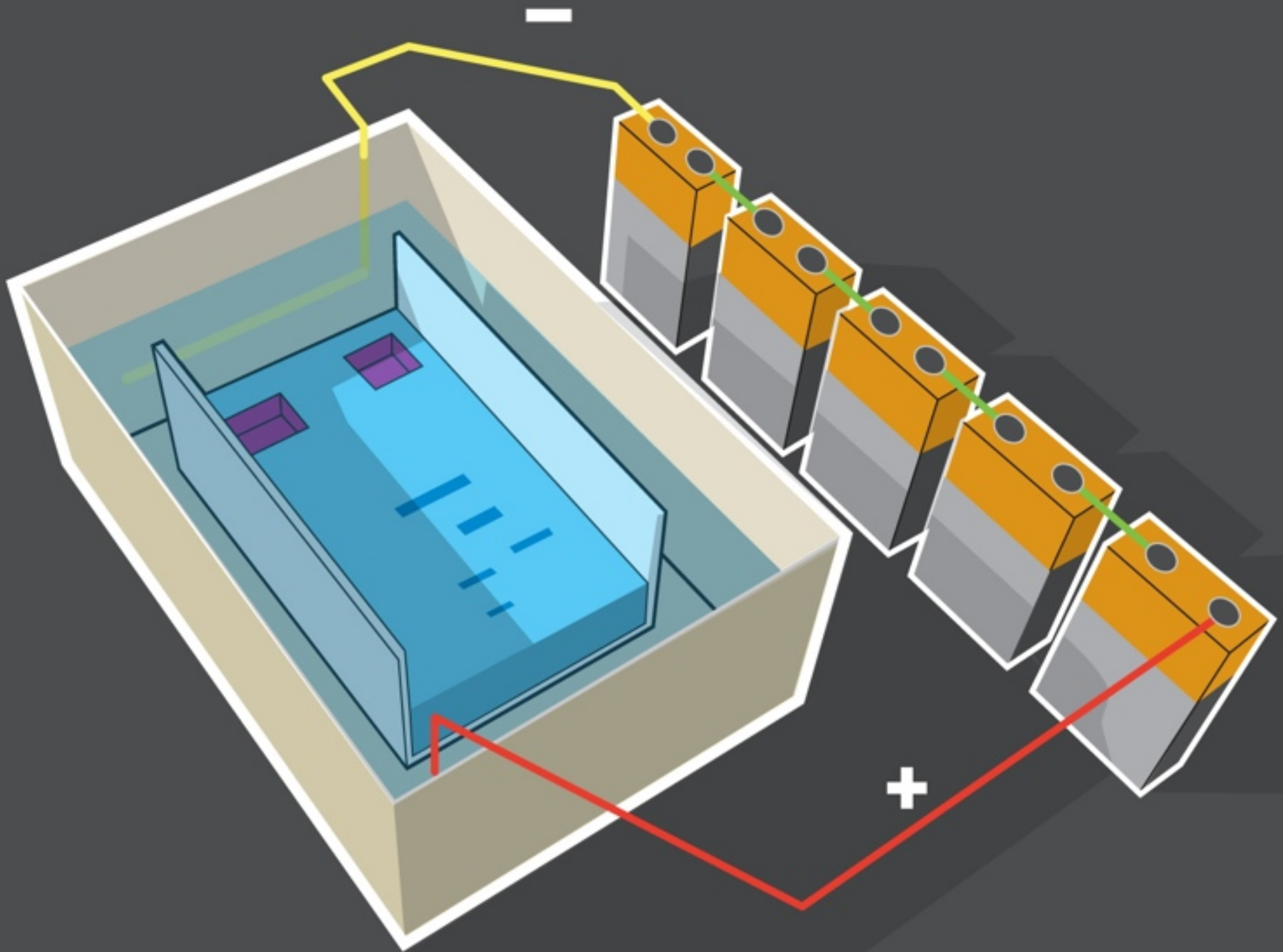


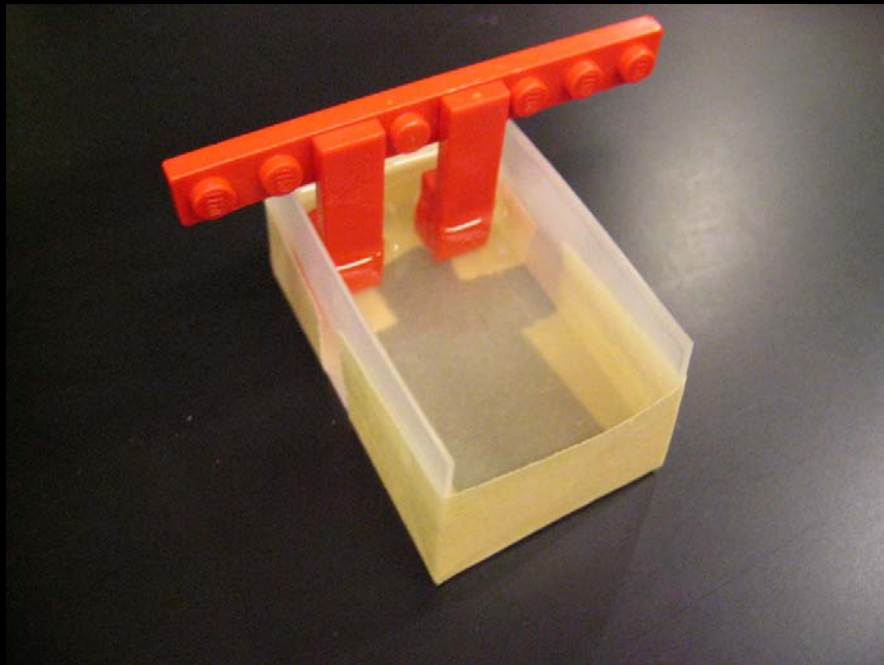
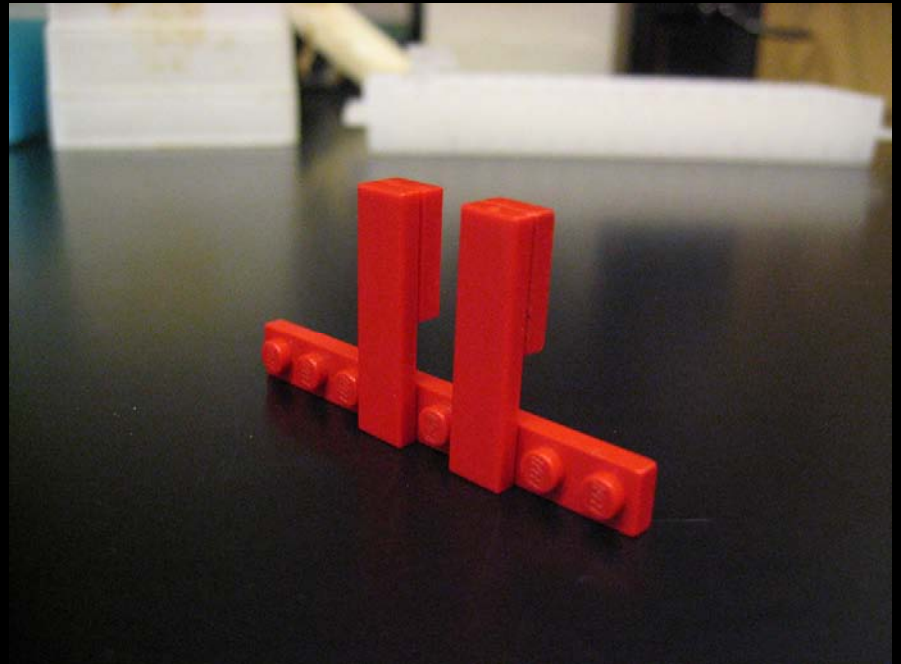
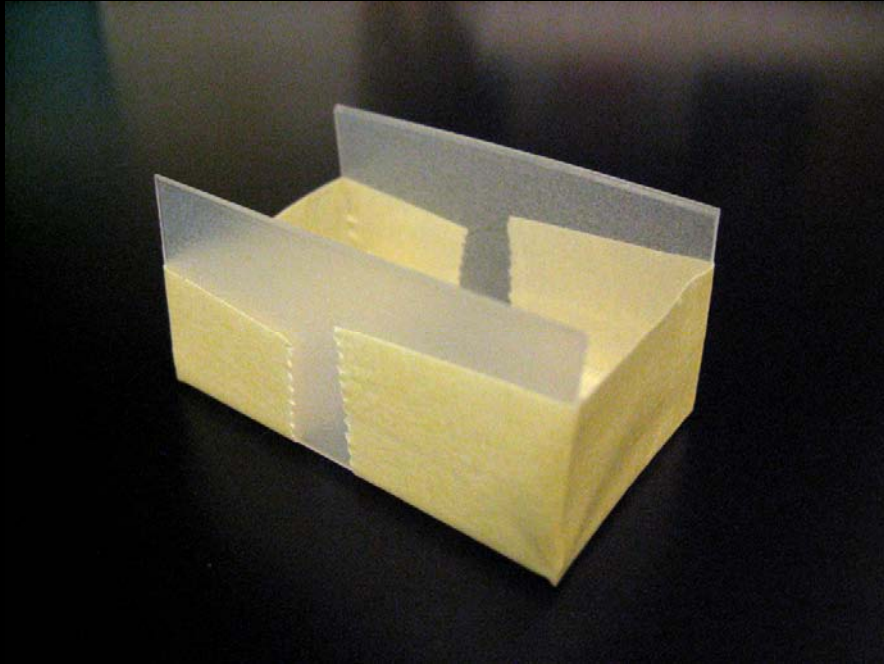
DIY PCR

getting the DNA

amplifying the DNA

checking it out





DIY PCR

scq.ubc.ca

“breakfast of champions”

“MacGyver”

scq.ubc.ca/MAKE

db@interchange.ubc.ca