How to Extract DNA from Anything Living

DNA! You mean I can see it? How?

Just follow these 3 easy steps:

Detergent

eNzymes (meat tenderizer)

Alcohol

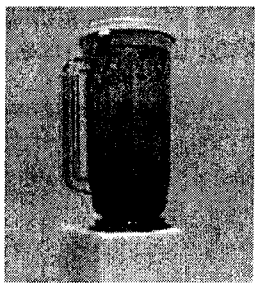
It's that simple?

First, you need to find something that contains DNA. Since DNA is the blueprint for life, everything living contains DNA.

There are lots of DNA sources:

- Spinach
- Chicken liver
- Onions
- Broccoli
- Or anything living

Here's the fun part. Put in a blender:

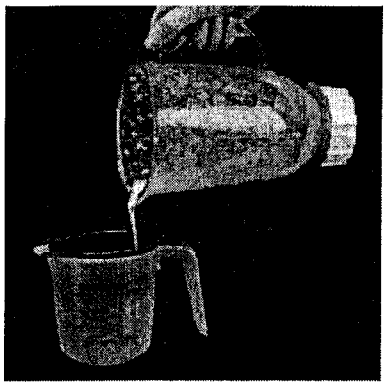


- Your DNA source (about 100ml or 1/2 cup of split peas)
- A large pinch of table salt (less than 1ml or 1/8 teaspoon)
- Twice as much cold water as the DNA source (about 200ml or 1 cup)

Blend on high for 15 seconds.

- The blender separates the pea cells from each other, so you now have a really thin pea-cell soup.

And now, those 3 easy steps:



1. Pour your thin pea-cell soup through a strainer into another container (like a measuring cup).

How much pea soup do you have? Add about 1/6 of that amount of liquid detergent (about 30ml or 2 tablespoons) and swirl to mix. Let the mixture sit for 5-10 minutes.

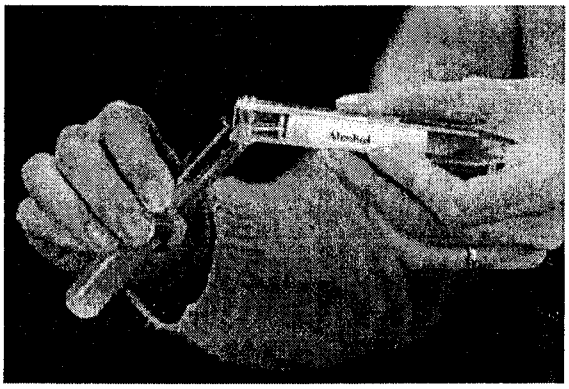
Pour the mixture into test tubes or other small glass containers, each about 1/3 full.

Try one of these detergents or whatever you have on hand.

2. Add a pinch of enzymes to each test tube and stir gently. Be careful! If you stir too hard, you'll break up the DNA, making it harder to see.

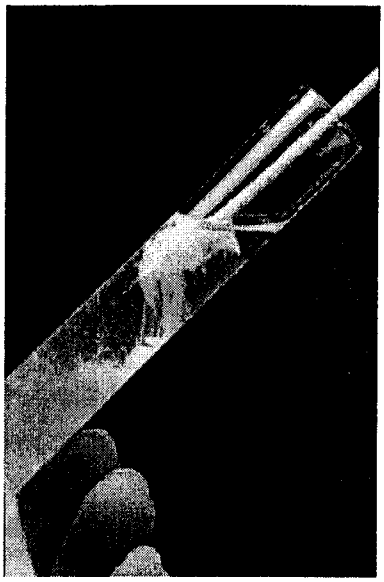
Use meat tenderizer for enzymes. If you can't find tenderizer, try using pineapple juice or contact lens cleaning solution.

3. Tilt your test tube and slowly pour rubbing alcohol (70-95% isopropyl or ethyl alcohol) into the tube down the side so that it forms a layer on top of the pea mixture. Pour until you have about the same amount of alcohol in the tube as pea mixture.



DNA will rise into the alcohol layer from the pea layer. You can use a wooden stick or other hook to draw the DNA into the alcohol.

What is that stringy stuff?



Alcohol is less dense than water, so it floats on top. Since two separate layers are formed, all of the grease and the protein that we broke up in the first two steps and the DNA have to decide: *"Hmmm...which layer should I go to?"*

This is sort of like looking around the room for the most comfortable seat. Some will choose the couch, others might choose the rocking chair.

In this case, the protein and grease parts find the bottom, watery layer the most comfortable place, while the DNA prefers the top, alcohol layer.

DNA is a long, stringy molecule that likes to clump together.