

# Avian DNA gelPCR Tests Training

Step-by-step guide with interactive video tutorials and simple instructions.

## INTRODUCTION

### Before You Begin

1. **Organize Your Lab Workflow:** PCR is extremely sensitive; even tiny amounts of unwanted DNA can cause false positive results. To reduce contamination risk, organize your workspace into three zones:
  - **Reagents Area:** For reagent preparation only. *No DNA sources.*
  - **Sampling Area:** DNA extraction (lysis) from blood or feathers.
  - **PCR Area:** Only for PCR and gel electrophoresis.
    - [How to organize your lab](#)
    - [How to prevent PCR contamination](#)

	Reagents area	Sampling area	PCR area
<b>Purpose</b>	Preparing extraction buffer and master mix	Preparing samples. Transferring lysates and gelPCR control to tubes with the master mix	Running the lysis, PCR, and DNA gel electrophoresis
<b>Precautions</b>	Bird material, material from the sampling area or PCR area should NOT be brought to this area.	Material from the PCR area should NOT be brought to this area  Carefully clean surfaces and clean or change gloves in between samples.	Discard the PCR tubes after data analysis is completed.
<b>Materials</b>	<p><u>Reagents</u> DEB™ Extraction Buffer PCR Master Mix Primers</p> <p><u>Equipment</u> 20-200 µl micropipette Marker Tube rack Trash container Bottle with bleach solution</p> <p><u>Consumables</u> Tissue paper Gloves 200 µl filter tips PCR tubes 1.5 ml tubes</p>	<p><u>Reagents</u> gelPCR Control Samples</p> <p><u>Equipment</u> 1-10 µl micropipette Marker Tube rack Trash container Bottle with bleach solution</p> <p><u>Consumables</u> Tissue paper Gloves 10 µl filter tips Parchment paper Toothpicks Razor blades and disposable tweezers (optional) Tissue paper</p>	<p><u>Reagents</u> DNA Ladder TBE Buffer SeeGreen Tabs</p> <p><u>Equipment</u> miniPCR thermal cyclor blueGel or GELATO 2-20 µl micropipette Device with miniPCR app Trash container</p> <p><u>Consumables</u> Tissue paper Gloves 20 µl filter tips</p>

**Questions?**  
Email [dx@minipcr.com](mailto:dx@minipcr.com) for technical support

2. **Set Up PCR Programs:** Download the miniPCR app and save the required programs before starting the experiment.

- [Download the miniPCR App](#)
- [How to operate the miniPCR](#)

Save the following programs into your app library:

- Avian DNA Extraction (Lysis): 95°C for 10 minutes.
- PCR Program: Check the User Guide of the test you are running

3. **Master Micropipetting:** Accurate pipetting is crucial for successful DNA testing. Learn this essential skill before handling reagents.

- [How to micropipette](#)
- [Introduction to micropipetting](#)

Test your skills! Add water or colored dyes to a tube strip.

- Add 25  $\mu$ L to tubes 1-4
- Add 50  $\mu$ L to tubes 5-8

**Does your strip look like the expected result? If so, you are ready to test!**

The graphic illustrates pipetting practice with two rows of tube strips. The top row shows 'Expected 25  $\mu$ L' (four tubes, each with a green checkmark and '25  $\mu$ L' label) and 'Expected 50  $\mu$ L' (four tubes, each with a green checkmark and '50  $\mu$ L' label). The bottom row shows 'Incorrect 25  $\mu$ L' (four tubes with labels 20  $\mu$ L, 25  $\mu$ L, 30  $\mu$ L, and 40  $\mu$ L; the 25  $\mu$ L tube has a green checkmark, while the others have red crosses) and 'Incorrect 50  $\mu$ L' (four tubes with labels 40  $\mu$ L, 50  $\mu$ L, 70  $\mu$ L, and 100  $\mu$ L; the 50  $\mu$ L tube has a green checkmark, while the others have red crosses). To the right of the top row is a teal button that says '→ Ready to move to the next step!'. To the right of the bottom row is a purple button that says '→ More practice needed!'. The entire graphic is titled 'Pipetting Practice' at the bottom and includes the 'minipcr Dx' logo in the top right corner.

**Questions?**  
 Email [dx@minipcr.com](mailto:dx@minipcr.com) for technical support

## The DNA Testing Procedure

Follow these simple steps:

### REAGENTS AREA

1. **Prepare Reagents:** Prepare the DNA Extraction Buffer and the PCR mix
  - [Reagent Preparation](#) video

### SAMPLING AREA

1. **DNA extraction:** process the samples to extract DNA (lysis step).
  - [DNA extraction](#) video
2. **Run PCR:** Add the lysates to the PCR mix and run the PCR program on your thermal cycler.
  - [Setting Up PCR](#) video

### PCR AREA

1. **Prepare Gel and Buffer:** While the PCR is running, prepare the gel and buffer for electrophoresis as shown in these videos.
  - [How to make gels](#)
  - [How to prepare 1X TBE Buffer](#)
2. **Run Gel Electrophoresis:** Load the samples on the gel and run. Take a picture after 15 to 30 min.
  - [How to use blueGel](#)
  - [How to load a gel](#)
3. **Interpret Results:** Determine the result by interpreting the band pattern. Keep a record of your results.
  - [How to interpret ZeeWee™ Bird DNA Sex Test results](#)

**Questions?**  
 Email [dx@minipcr.com](mailto:dx@minipcr.com) for technical support