



Dear Virginia Educators,

I want to again express my appreciation for your gracious support and feedback from the classroom during the past academic year. Every communication with you is important to the Biotech in a Box outreach program. Thank you for completing the feedback cards and the overwhelming positive words about the new blue transilluminators. I look forward to hearing from you as we prepare for the 2024-25 academic year.

I am excited to announce that we were awarded a grant from the Charles A. Stille Charitable Foundation. This funding has facilitated the replacement of DNA electrophoresis chambers and the purchase of two additional thermal cyclers. We sincerely appreciate this contribution to Biotech in a Box.

~Sandy Hancock

2024–2025 LOAN PROGRAM INFORMATION

Welcome to the 31st year of Biotech in a Box!

For the 2024-2025 academic school year, we are delighted to continue to serve Virginia middle schools, high schools, and community colleges with our loan program that offers 5 different kits: DNA Biotechnology, Protein Electrophoresis, Column Chromatography, Introduction to Immunology, and Slime Mold Behavior. Four thermal cyclers are also available to borrow. For detailed information about each kit, download kit manuals on the Biotech in a Box website:

<https://fralinlifesci.vt.edu/education-and-outreach/biotech-in-a-box.html>

Kit Loan Reservations

Starting in mid-May, loan request forms are available on the Biotech in a Box website or by request to our new email address **biotechninabox@vt.edu**.

- Complete and return the loan form by email attachment to **biotechninabox@vt.edu**. If you do not receive confirmation within one week that the loan request was received, please reach out to be sure we received the form.
- Please select **four** preferred date choices for each kit requested. We will do our best to fill your first or second choices.
- **Kits available to middle schools:** DNA Biotechnology Demo, Intro to Immunology, Slime Mold Behavior
- **To be included in the initial scheduling**, please return the loan form by **July 12, 2024**. Loan confirmations will be emailed by August 1, 2024. We will continue to accept loan requests throughout the year.
- **If there are multiple teachers at your school** who wish to use one of the equipment-heavy kits (DNA, protein, thermal cycler), please try to coordinate your requests. If needed, we can schedule extended loans to accommodate large number of students. **Include all teacher names on the kit-specific form.**

- **Loans are made to specific teachers.** If you are no longer able to use the kit and would like to transfer to another teacher in your school, please notify us about the change.
- **Requesting a kit(s) for both semesters**
 - DNA, Protein, thermal cycler (equipment-heavy) kits: submit a loan request for only the first semester during the initial scheduling. For the second semester, contact us in November 2024 for a list of loan dates available for the second semester.
 - Chromatography, Slime mold, Immunology: include dates for both semesters on your loan form.
- **Length of loan:** DNA, Protein, Chromatography, thermal cycler loan period is 2 weeks; Immunology and Slime Mold loan period is 3 weeks
- **DNA Biotechnology Kit information:**
 - **If you have your own equipment**, we can provide just the consumables (supplies/solutions/samples) for the experiment. Simply indicate **YES** for “consumables only” on the loan form and select the items you will need at the bottom of the form.
 - **SYBR Safe DNA stain and blue transilluminators** are now the standard method for viewing DNA fragments using the DNA kit. However, we will continue to supply methylene blue stain when requested.
 - **The 1kb DNA ladder** is an optional item and will only be included in the kit if you select **YES** on the loan form and indicate how many classes will use the DNA ladder. The maximum amount that we can send is enough for 10 classes; 8 groups/class. If you are not graphing the DNA fragment sizes, you will not need the DNA ladder.
- **Protein Electrophoresis Kit information:**
 - The kit includes **five** Bio-Rad 12% Mini-PROTEAN® TGX™ Precast polyacrylamide gels. **If you would like to purchase extra gels** for your classes (Bio-Rad catalog no. 4561043EDU), we will provide the solutions and supplies for up to 10 additional gels. Please indicate the number of extra gels on the loan form.
 - Supplies for drying protein electrophoresis gels between cellophane sheets are included with the kit. If you do not plan to dry gels with your students, please specify this on the loan form, and the supplies will not be shipped with the kit.
- **Thermal Cycler**
 - The thermal cycler loan is only the instrument with operating instructions, not a full kit. Four thermal cyclers are now available to borrow. If you would like to use the thermal cycler at the same time as the DNA Biotechnology Kit, please choose compatible loan slots and include a note on both loan forms indicating you would like the loans to be concurrent.

- We are currently exploring educational PCR kits available for purchase. Please reach out if you are considering purchasing a commercial kit for a PCR experiment with your students; we may be able to provide information on kits we have used or connect you with a teacher who has used the kit.

Shipping the Kit from Virginia Tech

There is no cost to you for shipping. Kits are shipped by FedEx and your kit will include a return shipping label.

- All kits (except the Immunology Kit) ship on Wednesday by FedEx for delivery by 4 pm on the first Monday of the loan period. If a kit arrives early, the materials can be stored at room temperature if the kit is not unpacked until Monday.
- Immunology Kits ship on Monday for delivery on Tuesday morning; the kit contains materials that are temperature-sensitive and must be properly stored upon receipt.
- One to two weeks before your kit is shipped, we will email a reminder to confirm the loan. Please reply to the email to let us know that your plans for the kit are unchanged or that you need to cancel/reschedule.

Receiving the Kit at your school

- You will receive an email from FedEx when the kit ships from Virginia Tech, and a second email when it is delivered to the school.
- When the kit arrives, unpack the kit as soon as possible and check the contents. A checklist is included with the kit. **Email immediately if anything is missing from the kit: biotechninbox@vt.edu**

Packing and Returning the Kit to Virginia Tech

Please help us keep on schedule by shipping the kit back on the Monday or Tuesday following the Friday that ends your loan period. If you need an extension, please contact us and we will do our best to accommodate your request.

- Please repack the kit carefully. Use the checklist to track the supplies and return the checklist with the kit. Use the supplied FedEx return label; call FedEx for a pick-up at your school.
 - Return **unused consumable lab supplies**, such as pipettes, pipette tips, tubes, ELISA plates, petri dishes.
 - Return **unopened** solutions in **tubes**; double bag the tubes to prevent leakage.
 - Return all solutions in **bottles**.
 - Immunology Kit: return unused TMB tablets.
 - Chromatography Kit: return unused sample solution (wrapped in foil)
 - Please **do not return used supplies** or mix used and unused supplies.
 - Discard partially used solutions and tubes according to your standard lab practices; you are welcome to keep solution tubes for your own lab use.
 - Kit manuals and checklists contain further information and reminders about returning items.

Questions?

For any questions, please contact:

Sandy Hancock at 540-231-7959 (w) or 540-818-5664 (c), biotechninbox@vt.edu