AI SAFETY SANDBOX · BIOSECURITY

Explain DNA synthesis screening in one page

Starter · 1–3 hours · Free · Step-by-step guide

Online version: https://ai-safety-sandbox.vercel.app/projects/dna-screening-one-pager/

Summary

Companies make synthetic DNA to order. Screening those orders and the customers who place them is one of the main defences against engineered pandemics. Explain how it works and where the gaps are.

Why it matters

DNA screening sits where biology, AI and policy meet, and decision-makers often lack a clear, short explanation. A good one-page explanation is useful to them.

What you will have at the end

A one-page explainer with a simple diagram.

Before you start: dual-use risk

Some biosecurity work can be misused. Work with an experienced mentor, keep anything you publish high-level, and ask before sharing detailed material. See BlueDot's guide: https://blog.bluedot.org/p/dual-use-advice

Steps (tick each box as you go)

- [ ] **1. Read the primer (30 min)**
  Read Asimov Press's "Is that DNA dangerous?". Write the core idea in one sentence.
- [ ] **2. Map the pipeline (30 min)**
  Sketch the steps from a customer placing an order to DNA being shipped. Mark where screening happens.
- [ ] **3. Find the gaps (30 min)**
  Note where things could slip through (for example, unscreened providers, benchtop DNA printers, or checking the customer rather than just the sequence). Look at what SecureDNA and IBBIS work on.
- [ ] **4. Write the page (45 min)**
  Explain what screening is, why it matters, how it works, and one open problem. Keep it high-level: no detail that would help someone evade screening.
- [ ] **5. Get feedback (15 min)**
  Ask someone outside biology to read it. Then share it with your group.

What you need

- A web browser
- About two hours

What you will learn

- How DNA synthesis screening works
- Where AI and biosecurity overlap
- Writing responsibly about dual-use topics

Key terms

DNA synthesis screening
Checking orders for synthetic DNA, and the customers placing them, so companies do not unknowingly help someone build a dangerous pathogen.

Dual-use
Knowledge or tools that can be used for protection or for harm. In biosecurity this calls for extra care about what you research and publish.

Source and links

Asimov Press — Is that DNA dangerous?
https://press.asimov.com/articles/dna-screening

SecureDNA
https://securedna.org/

IBBIS
https://ibbis.bio/

When you have finished

Write a few paragraphs on what you did, what you found and what you would try next, and share it with a friend, your society or online.

Try next: Review safer frameworks for ordering DNA
https://ai-safety-sandbox.vercel.app/projects/dna-ordering-frameworks-review/

Try next: Build a customer-screening training dataset
https://ai-safety-sandbox.vercel.app/projects/customer-screening-dataset/

Courses, mentors, small grants and communities:
https://ai-safety-sandbox.vercel.app/next-steps/

Questions? Ask in AI Safety Cardiff University (AISCU): https://aiscu.org/

Notes