IBBIS

International Biosecurity and Biosafety Initiative for Science

PERSONAS FOR FOLLOW-UP SCREENING

IBBIS ARCHIVED WORKSHOP MATERIALS

Tessa Alexanian | September 2024

This set of customer personas was used during a follow-up screening exercise at the workshop on "Enabling Quality, Measurable DNA Sequence Screening" hosted by the Engineering Biology Research Consortium on September 10–11, 2024.

The basic structure of the exercise involves giving each participant a profile, then asking them to find a partner, read over their profile without showing their partner, and deciding who will play the customer first. The person playing the customer gives their partner, who is playing the screening, their flagged order. For five minutes, the customer attempts to convince the screener to send the sequence, while the screener decides whether to (1) fulfill the order, (2) deny the order, or (3) deny *and* report to law enforcement. After five minutes, the partners swap roles.

If you wish to run your own workshop on follow-up screening, feel free to reach out to screening@ibbis.bio for support.

Alexander Ballmer

Title: “Chief Scientific Officer”
Institution: “AccuAqua Ltd”
Location: Cincinnati, USA
Email: alex@accuaqua.com

Advice on playing Alexander: You respond somewhat kindly to the questions, **adding as many fake details as you can** to sustain your story of being a lab researcher interested in wastewater surveillance, trying to fit your answers with what you think they want to hear. *Alexander is **not** a legitimate customer.*

Order Information

What is the intended end use for these sequences?	You will explain that your lab is interested in doing wastewater surveillance of emerging pathogens, and you are trying to develop a test that could catch novel pathogens. In reality, you are part of an extreme cult trying to engineer a bacterial pathogen that can be put into the water supply in order to bring about Armageddon.
Are you the end user of the ordered sequences?	Yes, though others in your “small startup” may also work with the sequences.
Where is your order being shipped?	You provide the address of an office building in the suburbs of Cincinnati.

Individual Legitimacy Information

Have you worked with similar sequences before?	No, though you have an undergraduate degree in biochemistry from Northwestern University, and until two years ago, worked as a bioprocess engineer at a large industrial biotechnology company.
What additional documentation can you provide connecting the end user to this project?	You can put the company in touch with another person at the company, who will agree that you are involved in the project.

Institutional Legitimacy Information

Does your institution have legal standing?	There is a very basic website with almost no information. However, the company is not legally registered, so you cannot provide paperwork about the registration.
Does your institution have a mission or purpose that includes life sciences?	You will explain that your lab is interested in doing wastewater surveillance of emerging pathogens, and you are trying to develop a test that could catch novel pathogens. For that reason, you need this bacteria to test your system.
Does your institution provide biosafety oversight or training?	You will claim that you provide basic biosafety training (e.g. spill handling, waste disposal, PPE) before anyone works in the lab.
Does your institution have regulatory approval or official certification to work with life sciences materials?	No. The company is a front for an extreme cult and is attempting to minimize contact with the local regulatory authorities.
Has your work been approved by a biosafety oversight process?	No, though there is someone in the front company you have set up who will pretend (not entirely convincingly) to be a lab manager responsible for biosafety.
Do you have access to a high-containment lab?	No, but you will explain that your company is in the process of installing a BSL-2 lab.

Flagged Order - Alexander Ballmer

Sequence

ggtagttccctaaacttatcattaagcgatcttcatcgtcaggtatctcgattggtgcagcaagagagcggtgattgtaccgggaaattaagaggtaacgttgctgccaataaagaaactacctttcaaggtttgacca
tagccagtggagccagagagtcagaaaaagtatttgctcaaactgtactaagccacgtagcaaatgttgttctaactcaagaagatacccgctaagctattgcaaagtacggtaaagcataatttgaataattatgac
ttaagaagtgtcggcaatggtaatagtgtacttgtcagtttacgtagtgaccaaatgacactacaagacgccaaagtgctgttggaggccgcattgcgacaagagtcgggagcgaggggcatgtatcatctcatt
cacattcagcccttcacgcaccgggaaccccggtgcgtgaaggactgcgttcacatctagaccccagaactccaccgttgccaccgcgtgaacgaccacacacttctggccatcacggggctggcgaagcca
gagccaccgcaccaagcactgtttctccttatggcccagaagcgcgcgcagaactcagcagccgcctcaccacattgcgcaatacgctggcgccagcaacgaatgatccgcgttacttacaagcctgcggcg
gtgaaaagctaaaccgatttagagatattcaatgctgtcggcaaaccgcagtacgcgccgatcttaatgccaattacatccaggtcggtaacactcgtaccatagcgtgccagtatccgctacaatctcaacttgaa
agccatttccgtatgctggcagaaaaccgaacgccagtgttggctgttttagcgtccagttctgagatagccaatcaaagattcggtatgccagattatttccgccagagtggtacctatggcagtatcactgtagagt
ctaaaatgactcagcaagttggtctcggtgacgggattatggcagatatgtatactttaacgattcgtgaagcgggtcaaaaaacaatctctgttcctgtggttcatgttggcaattggcccgatcagaccgcagtcag
ctctgaagttaccaaggcactcgcttcactggtagatcaaacagcagaaacaaaacgcaatatgtatgaaagcaaaggaagttcagcggtaggagatgactccaaattacggccggtaatacattgccgtgcg
ggtgttggccgtactgcgcaactgattggcgcaatgtgcatgaatgatagtcgtaatagtcagttaagcgtagaagatatggtcagccaaatgcgagtacaaagaaatggtattatggtacaaaaagatgagcaa
cttgatgttctgattaagttggctgaaggacaagggcgaccattattaaatagctactagagcagatccgccaggcgtgtatatatagcgtggatggccaggcaactttagtgctgacacatacaggcatatatatat
gtgtgcgacgacacatgatcatatggcatgcatgtgctctgtatgtatataaaactcttgttttcttctttctctaaatattctttccttatacattaggacctttgcagcataaattactatacttctatagacacacaaacaca
aatacacacactaaattaatatactagatgctcgagggagctgtgagcaagggcgaggaggataacatggccatcatcaaggagttcatgcgcttcaaggtgcacatggagggctccgtgaacggccacgag
ttcgagatcgagggcgagggcgagggccgcccctacgagggcacccagaccgccaagctgaaggtgaccaagggtggccccctgcccttcgcctgggacatcctgtcccctcagttcatgtacggctccaag
gcctacgtgaagcaccccgccgacatccccgactacttgaagctgtccttccccgagggcttcaagtgggagcgcgtgatgaacttcgaggacggcggcgtggtgaccgtgacccaggactcctccctgcagg
acggcgagttcatctacaaggtgaagctgcgcggcaccaacttcccctccgacggccccgtaatgcagaagaagaccatgggctgggaggcctcctccgagcggatgtaccccgaggacggcgccctgaa
gggcgagatcaagcagaggctgaagctgaaggacggcggccactacgacgctgaggtcaagaccacctacaaggccaagaagcccgtgcagctgcccggcgcctacaacgtcaacatcaagttggaca
tcacctcccacaacgaggactacaccatcgtggaacagtacgaacgcgccgagggccgccactccaccggcggcatggacgagctgtacaagtactagagggtagcgatggttccggtagcggttccggttc
tatcactattagggctgctttttggaaaaagaaaatactgctttgagaactgaaattgctgaattggaaaaagaagttggtagatgtgaaaatattgtttctaaatatgaaactagatatggtccattg

Flags

Virulence Factor Detected	Virulence factor found in bases 4 to 471, WARNING - Gene: putative secreted protein-tyrosine phosphatase [Yersinia pestis CO92]
Match Not Exclusive To Regulated Pathogen	Best match to sequence(s) WP_016682659 at bases 13 - 1413 found in only regulated organisms: FLAG (bacteria) - **Species**: Yersinia pestis (taxid(s): 632, 755969) (100.0 percent identity to query) - **Description**: T3SS effector protein-tyrosine-phosphatase YopH, partial [Yersinia pestis] Regulated protein region at bases 13 to 1413 overlapped with a nucleotide hit - Species: Saccharomyces cerevisiae (taxid(s): 559292, 4932) (99.559 percent identity to query) - top hit exclusive to a regulated pathogen: PASS

Carolina Chavez

Title: Chief Scientific Officer
Institution: Viramer Inc.
Location: Monterrey, Mexico
Email: carolina@viramir.medical

Advice on playing Carolina: You respond somewhat interested to the questions, adding as much information as you can provide about your situation, the community lab, past experience to prove your trajectory, and information about the BSL-1 lab. *Carolina is a legitimate customer.*

Order Information

What is the intended end use for these sequences?	You work for a startup that is trying to engineer an aptamer diagnostic for African swine fever. You are ordering this sequence as a positive control.
Are you the end user of the ordered sequences?	Yes, though there are two other people in your small startup who do lab work and may also work with the sequences.
Where is your order being shipped?	To a laboratory incubator space that also hosts a community lab in downtown Monterrey.

Individual Legitimacy Information

Have you worked with similar sequences before?	Your Master's degree, from the University of Madrid, involved work with aptamer structure, though not directly with diagnostic applications. You can provide publications
What additional documentation can you provide connecting the end user to this project?	You can provide a local news story (in Spanish) discussing the current cohort of startups in the incubator space, in which you were interviewed. You can also share a pitch deck (in English) that you give to investors, which lists you as one of the company cofounders.

Institutional Legitimacy Information

Does your institution have legal standing?	No, your company is not yet legally incorporated. If necessary, you will put the screener in touch with the incubator space that is hosting you as evidence that you are legitimate.
Does your institution have a mission or purpose that includes life sciences?	Yes, you are a biotechnology startup.
Does your institution provide biosafety oversight or training?	The incubator space provides basic health and safety training to everyone using its lab space. There is a laboratory manager responsible for the safe operation of the space. There were recently some additional safety training sessions because one researcher using the same incubator space (not associated with your start-up) was on the news a few weeks ago, due to a publicity stunt involving self-administration of an experimental vaccine.
Does your institution have regulatory approval or official certification to work with life sciences materials?	Sort of? The incubator space has been funded by the municipal government and the lab has fire safety approvals. Your startup does not have any direct regulatory approval or official certifications.
Has your work been approved by a biosafety oversight process?	Sort of? This is a 4-person startup, and you and the CEO are the only people at the startup with previous biology lab experience. But you did talk about how to handle the sequences safely, and you don't plan to express any functional virus given that you don't have access to a high-containment lab.
Do you have access to a high-containment lab?	No. You are working out of a BSL-1 incubator space.

IBBIS

Flagged Order - Carolina Chavez

Sequence

ttcatttttttaaagatgaagtttttttagatatttttttagtttttttagatatttttttagttgttttgagaaaaaaatttttttaaaagacgaatattcttaaaccccgcaaattacttttttaggtactgtaacgcagcacagctgaacc
attctgaagaagaagaaagttaatagcagatgccgataccacaagatcagccgtggtgatagaccccacgtaatccgtatcccaactaatataaaattctcttgctctagatacattaatatgaccactgggttggta
ttcctcccgtggcttcaaagcaaaggtaatcatcatcgcacccggatcgtcgggggttttaatcgcattgcctccgtagtggaagggtatgtaagagctgcagaactttgatggaaatttatcgataagattgataccat
gagcagttacggaaatgtttttaataataggtaacgtgatcggatacgtaacggggctaatatcagatatagatgaacatgcgtctggaagagctgtatctctatcctgaaagcttatctctgcgtggtgagtaggctg
cataatggcgttaacaacatgtccgaacttgtgccaatctcggtgttgatgaggattttgatcggagatgttccaggtaggttttaatcctataaacatatattcaatgggccatttaagagcagacattagtttttcatcgtg
gtggttattgttggtgtgggtcacctgcgttttatggacacgtatcagagaaaatcgaacgcgttttacaaaaaggttgtgtatttcaggggttacaaacaggttattgatgtaaagctcattattcgtgagcgagatttcatt
aatgactcctgggataaaccatggtttaaagcgtatattgcgtctactggggcgtccagctataaaacgtgactggcgtacaaaaagaccaggaaattcattcaccaaatccttttgcgatgcaagctttatggtgat
aaagcgctcgccgaaggggatggataccgagggaatagcaaggttcacgttctcgttaaaccaaaagcgcagcttaatccagagcgcaagaggggggctgatagtatttaggggtttgaggtccattacagctgt
aatgaacattacgtcttatgtccagatacgttgcgtccgtgataggagtgatatcttgtttacctgctgtttggatattgtgagagttctcgggaaaatgttgtgaaagaaatttcgggttggtatggctgcacgttcgctgcg
tatcattttcatcggtaagaataggtttgctttggtgcggcttgtgcaaatcatgaatgttgcataggagagggccactggttccctccaccgatacctcctggccaaccaagtgcttatatccagtcattttatccccctggg
atgcaaaatttgcgcacaagcgttgtgacatccgaactatattcgtctagggaatttccatttacatcgaatcttacgttttcataaagtcgttctccggggtattcgcagtagtaaaccaagtttcggtacgcattctttgtg
ccgggtacaatgggtcttccaaaaggatctacaagcgtgtaaacggcgccctctaaaggtgtttggttgtcccagtcatatccgttgcgaggaaacgtttgaagctgcccatgggcccccatctgggacgtgccctg
aatcggagcatcctgccaggacgaatgacatgcacccaatatatgatggcccaccatatcatggaaaaagtctccgtactggggaataccaaaggtaagcttgtttcccaaggtgggggtacccgtatgcgggc
gtactttattgtattcaaaccctaccggaacataaggcttaaaatgcgcattaaaatgcaccaaatgtgtttcttcgatttgactcaaagtgggttcggggtcgggtttcccataacttttgttcacatttttaatgttagagat
cctgctattcagcaagtcttgggccaatataatcttgtcggccttcccatcgttagcaataagacaaaaagctcctcctgatgccatatataatgttataaaaataatttattgtttttattaaata

Flags

Regulated Pathogen Match	Best match to sequence(s) UZM07850, 6KU9_A, YP_009927206 at bases 129 - 2066 found in only regulated organisms: FLAG (virus) - **Species**: African swine fever virus (taxid(s): 10497) (100.0 percent identity to query) - **Description**: p72 protein [African swine fever virus]
Regulated Pathogen Match	Regulated protein region at bases 129 to 2066 overlapped with a nucleotide hit - Species: African swine fever virus (taxid(s): 10497) (100.0 percent identity to query)
Regulated Pathogen Match	Best match to sequence(s) AY578694 at bases 1 - 129 found in only regulated organisms: FLAG (virus) - Species: African swine fever virus (taxid(s): 10497) (100.0 percent identity to query) - Description: African swine fever virus isolate F6 major capsid protein p72 (p72) gene, complete cds

Earl Gilmore

Title: Laboratory Technician III
Institution: Agile Biofoundry, Lawrence Berkeley National Lab
Location: Emeryville, USA
Email: gilmore.earl@lbl.gov

Advice on playing Earl: Earl cares about doing what is required, but also wants to give the customers a reasonable turnaround time on their assay orders. He will remain friendly, but will not want to involve other people in the screening process. *Earl is a legitimate customer, but it may be hard to verify his legitimacy since he isn't highly familiar with the end user of the order.*

Order Information

What is the intended end use for these sequences?	These sequences are being ordered as part of an immunoassay for studying protein-protein interactions, as requested by a customer of the Agile Biofoundry.
Are you the end user of the ordered sequences?	You will likely run these experiments yourself, but are not the designer of the relevant experiment, who is a customer of the biofoundry. By default, you will only provide data to the customer, but will provide TAP-tagged proteins on request.
Where is your order being shipped?	To shipping and receiving at a building in part of one complex of the Lawrence Berkeley National Lab.

Individual Legitimacy Information

Have you worked with similar sequences before?	Yes, immunoassays are a common offering from your biofoundry, and you've previously assisted customers with them, but this is the first time you are using this specific Tandem Affinity Purification (TAP) tag.
What additional documentation can you provide connecting the end user to this project?	You appear in the online staff directory of the biofoundry. You did not participate in the onboarding for the customer in question. Due to confidentiality measures designed to protect the IP of the biofoundry's partners, lab technicians do not have access by default to the end user's name and institution, and you would be reluctant to ask the business development team to find out.

Institutional Legitimacy Information

Does your institution have legal standing?	Yes, the Agile Biofoundry is part of a well-known US National Lab.
Does your institution have a mission or purpose that includes life sciences?	Yes, Lawrence Berkeley National Laboratory does research on many topics as part of the US Department of Energy's Office of Science, including biomanufacturing.
Does your institution provide biosafety oversight or training?	Yes, you have a formal training and certification process for all employees who work in the lab. There are numerous SOPs for biosafety best practices available on the online laboratory safety hub for Lawrence Berkeley National Laboratory.
Does your institution have regulatory approval or official certification to work with life sciences materials?	Sort of, you have several certified biosafety cabinets, and your laboratory is regularly inspected by the local fire department, and complies with biosafety requirements necessary to receive federal funding.
Has your work been approved by a biosafety oversight process?	This is a standard offering from the biofoundry, and was not specifically approved through an oversight process. There is an Institutional Biosafety Committee at Lawrence Berkeley National Lab, as well as an Environment, Health and Safety Division responsible for ensuring worker safety in the lab.
Do you have access to a high-containment lab?	The highest containment level at the Agile Biofoundry is BSL-1, though Lawrence Berkeley Lab also has BSL-2 facilities.

Flagged Order - Earl Gilmore

Sequence

gtagacaacaaattcaacaaagaacaacaaaacgcgttctatgagatcttacatttacctaacttaaacgaagaacaacgaaacgccttcatccaaagtttaaaagatgacccaagccaaagcgctaacctttt
agcagaagctaaaaagctaaatgatgctcaggcgccgaaa

Flags

Toxin Detected	Regulated gene in bases 2 to 58: FLAG - Gene: Immunoglobulin G-binding protein A
Match Not Exclusive To Regulated Pathogen	Best match to sequence(s) 6HQA_A, 7BG9_A, 6XZG_CP1, 6WMP_D, 7VVY_E, 1H0T_A at bases 1 - 174 found in both regulated and non-regulated organisms - **Species**: Gammainfluenzavirus influenzae, Komagataella phaffii, Saccharomyces cerevisiae, Francisella tularensis, Homo sapiens, Staphylococcus aureus (taxid(s): 1280, 100673, 9606, 376619, 559292, 644223) (100.0 percent identity to query) - **Description**: Chain A, Telomerase reverse transcriptase,Telomerase reverse transcriptase [Homo sapiens]

Faiza Aziz

Title: PhD Student
Institution: Baqiyatallah University of Medical Sciences Tehran
Location: Tehran, Iran
Email: azizfaiz39@bmsu.ac.ir

Advice on playing Faiza: You respond somewhat nervously to questions, given your lack of prior experience working with living modified organisms and your desire to impress your rotation PI. *Faiza **may not be considered a legitimate customer**, depending on whether the order is covered by export controls directed against Iran or the (military-associated) university.*

Order Information

What is the intended end use for these sequences?	You are a junior PhD student newly rotating into a bacterial therapeutics lab. These sequences will be used as part of a scoping project for a multiepitope vaccine *H. pylori*, using a fusion protein that contains a chimeric flagellin connected to an *H. pylori* virulence factor, designed to provoke an adaptive immune response.
Are you the end user of the ordered sequences?	Yes, you will be conducting this experiment.
Where is your order being shipped?	To the shipping and receiving department of the university.

Individual Legitimacy Information

Have you worked with similar sequences before?	You completed a Master's degree in microbiology at a university in Islamabad, Pakistan, which included analysis of antimicrobial resistance in clinical isolates of *H. pylori*. You have not done research on vaccines or chimeric proteins.
What additional documentation can you provide connecting the end user to this project?	You are registered at the university, and can provide documentation of this. Your name does not appear on the laboratory's webpage, since you are a rotation student, and have only been in the law for two weeks.

Institutional Legitimacy Information

Does your institution have legal standing?	Yes, it is a well-established Iranian medical university. You can easily provide the website for the university, but would not know where to find information like incorporation documents.
Does your institution have a mission or purpose that includes life sciences?	Yes, it is a well-established Iranian medical university. You can provide numerous scientific publications originating from the university, as well as the lab in which you are rotating.
Does your institution provide biosafety oversight or training?	Yes, everyone who works in a laboratory space in the university is trained in appropriate biosafety procedures
Does your institution have regulatory approval or official certification to work with life sciences materials?	Yes, though you don't know much detail on this. (If you ask around, you will be able to find out that the biosafety cabinets in the lab have been certified, and that the laboratory is registered as conducting genetic manipulation work under the National Biosafety Framework.)
Has your work been approved by a biosafety oversight process?	Yes, your institution has an institutional biosafety committee which approves all work with Living Modified Organisms. It did not approve you to work on this project, but did approve the lab to carry out research on engineering *H. pylori* in general.
Do you have access to a high-containment lab?	You will be working in a BSL-2 lab when using live *H. pylori* cultures. Preparation of constructs will be done in a BSL-1 lab. You do not have access to a BSL3 lab.

IBBIS

Flagged Order - Faiza Aziz

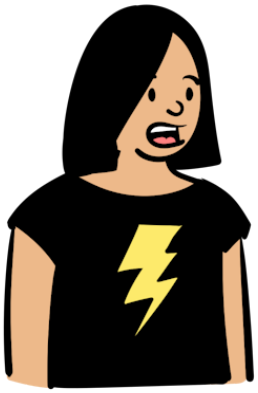
Sequence

atggcacaagtcattaataccaacagcctctcgctgatcactcaaaataatatcaacaagaaccagtctgcgctgtcgagttctatcgagcgtctgtcttctggcttgcgtattaacagcgcgaaggatgacgcagc
gggtcaggcgattgctaaccgtttcacctctaacattaaaggcctgactcaggcggcccgtaacgccaacgacggtatctccgttgcgcagaccaccgaaggcgcgctgtccgaaatcaacaacaacttacag
cgtgtgcgtgaactgacggtacaggccactaccggtactaactctgagtctgatctgtcttctatccaggacgaaattaaatcccgtctggatgaaattgaccgcgtatctggtcagacccagttcaacggcgtgaac
gtgctggcaaaaaatggctccatgaaaatccaggttggcgcaaatgataaccagactatcactatcgatctgaagcagattgatgctaaaactcttggccttgatggttttagcgttaaagcgttaatcacggcttctg
gggatattagcttgacttttaaacaagtggatggcgtgaatgatgtaactttagagagcgtaaaagtttctagttcagcaggtacagggtactagatgaaaaagattagcagaaaagaatatgtttctatgtatggccc
tactacaggcgataaagtgagattgggcgatacagacttgatcgctgaagtagaacatgactacaccatttatggcgaagagcttaaattcggtggcggtaaaaccctaagagaaggcatgagccaatctaaca
atcctagcaaagaagaactggatttaatcatcactaacgctttaatcgtggattacaccggtatttataaagcggatattggtattaaagatggcaaaatcgctggcattggtaaaggcggtaacaaagacatgcaa
gatggcgttaaaaacaatcttagcgtgggtcctgctactgaagccttagccggtgaaggtttgatcgtaactgctggtggtattgacacacacatccacttcatctccccccaacaaatccctacagcttttgcaagcg
gtgtaacaaccatgattggtggcggaactggccctgctgatggcactaacgcaaccactatcactccaggcagaagaaatttaaaattcatgctcagagcggctgaagaatattctatgaactttggtttcttggcta
aaggtaacgtttctaacgatgcgagcttagccgatcaaattgaagctggtgcgattggctttaaaatccacgaagactggggtaccactccttctgcaatcaatcatgcgttagatgttgcagacaaatacgatgtgc
aagtcgctatccacacagacactttgaatgaagccggttgcgtggaagacactatggcagccattgccggacgcactatgcacactttccacactgaaggcgctggcggcggacacgctcctgatattattaaag
tggccggtgaacacaacattctacctgcttccactaaccccactatccctttcaccgtgaatacagaagccgaacacatggacatgcttatggtgtgccaccacttggataaaagcattaaagaagatgttcagttc
gctgattcaaggatccgccctcaaaccattgcggctgaagacactttgcatgacatggggattttctcaatcaccagttctgactctcaagctatgggtcgtgtgggtgaagttatcaccagaacttggcaaacagctg
acaaaaacaaaaaagaatttggccgcttgaaagaagaaaaggcgataacgacaacttcaggatcaaacgctacttgtctaaatacaccattaacccagcgatcgctcatgggattagcgagtatgtcggttct
gtagaagtgggcaaagtggctgacttggtattgtggagtccagcattctttggtgtgaaacccaacatgatcatcaaaggcggattcattgcattgagtcaaatgggtgatgcgaacgcttctatccctaccccacaa
ccggtttattacagagaaatgttcgctcatcatggtaaagctaaatacgatgcaaacatcactttgtgtctcaagcggcttatgacaaaggcattaaagaagaattagggcttgaaagacaagtgttgccggtaaa
aaattgcagaaacatcactaaaaaagacatgcaattcaacgacactaccgctcacattgaagtcaatcctgaaacttaccatgtgttcgtggatggcaaagaagtaacttctaaaccagccaataaagtgagctt
ggcgcaactctttagcattttctactagagtccgcttgttactgtgagctttcctactagatgggtgtgttggcagaagtgattaacaaaaattctaaccgaacaggggttaaagcttatgcgagcgttatcaccacgagc
gatgtggcggtccaatcaggaagtttgagtaatttaactttaaatgggatccatttgggtaatatcgcagatattaagaaaaatgactcagacggaaggttagtcgcagcgatcaatgcggttacttcagaaaccgg
cgtggaagcttatacggatcaaaaagggcgcttgaatttgcgcagtatagatggtcgtgggattgaaatcaaaaccgatagcgtcagtaatgggcctagtgctttaacgatggtcaatggcggtcaggatttaaca
aaaggttctactaactatgggaggctttctctcacacgcttagacgctaaaagcatcaatgtcgtttcggcttctgattcgcaacatttaggtttcacagcgattggttttggggaatctcaagtggcagaaaccacggtg
aatttgcgcgatgttactgggaattttaacgctaatgtcaaatcagccagtggcgcgaactataacgccgtgatcgctagcggtaaccaaagcttgggatctggggttacaaccttaagagctgttgcaaatggtaa
aaccacggatccgctgaaagcgctggacgatgctatcgcatctgtagacaaattccgttcttccctcggtgcggtgcaaaaccgtctggattccgcggttactaacctgaacaacaccactaccaacctgtctgaa
gcgcagtcccgtattcaggacgccgactatgcgaccgaagtgtccaatatgtcgaaagcgcagatcatccagcaggccggtaactccgtgttggcaaaagctaaccaggtaccgcagcaggttctgtctctgtta
cagggttactagagcgaggagaccaccaccaccaccaccactag

Flags

Virulence Factor Detected	Biorisks: Regulated gene in bases 1 to 226: FLAG - Gene: (fliC) flagellin FliC [Peritrichous flagella (VF0732) - Motility (VFC0204)] [Clostridium difficile 630], flagellin [Legionella pneumophila str. Paris], (flaD) flagellin [Flagella (VF0519) - Motility (VFC0204)] [Vibrio cholerae O1 biovar El Tor str. N16961]
Virulence Factor Detected	Biorisks: Regulated gene in bases 856 to 1097: FLAG - Gene: (fliC) flagellin FliC [Peritrichous flagella (VF0732) - Motility (VFC0204)] [Clostridium difficile 630], flagellin [Legionella pneumophila str. Paris], (flaD) flagellin [Flagella (VF0519) - Motility (VFC0204)] [Vibrio cholerae O1 biovar El Tor str. N16961]
Virulence Factor Detected	Biorisks: Regulated gene in bases 908 to 1097: FLAG - Gene: (flaD) flagellin [Flagella (VF0519) - Motility (VFC0204)] [Vibrio cholerae O1 biovar El Tor str. N16961], (fliC) flagellin FliC [Peritrichous flagella (VF0732) - Motility (VFC0204)] [Clostridium difficile 630], flagellin [Legionella pneumophila str. Paris]

Virulence Factor Detected	Biorisks: Regulated gene in bases 985 to 1096: FLAG - Gene: (fliC) flagellin FliC [Peritrichous flagella (VF0732) - Motility (VFC0204)] [Clostridium difficile 630], flagellin [Legionella pneumophila str. Paris], (flaD) flagellin [Flagella (VF0519) - Motility (VFC0204)] [Vibrio cholerae O1 biovar El Tor str. N16961]
Virulence Factor Detected	Virulence factor found in bases 218 to 780, WARNING - Gene: urease [Coccidioides posadasii]



Huamei Liu

Title: Lab Leader, TAS Taipei iGEM 2024
Institution: TAS, a private high school
Location: Taipei, Taiwan
Email: 6843619@qq.com

Advice on playing Huamei: You are the eager team leader of a high school team. If you are uncertain about something, you will remind the screener that your mentor and iGEM have approved the project. You can also mention that you are open to discussing these questions with your mentor. *Huamei is probably a legitimate customer, though perhaps not for SOCs.*

Order Information

What is the intended end use for these sequences?	Your iGEM team is working on a targeted therapeutics project for cancer treatment. You are engineering a transgenic system that can be controlled by light to precisely deliver targeted therapeutics to kill cancer tumors.
Are you the end user of the ordered sequences?	Yes, you, and potentially the other 5 members of the wet lab sub-team will work with this sequence.
Where is your order being shipped?	To the home address of the Mentor for the team, who is a professor at a local university. If needed, you can instead ship it to your high school, or to the mentor's university, but the mentor suggested shipping it directly to his house because the high school does not have shipping and receiving set up for biological materials and this is not a project of the university.

Individual Legitimacy Information

Have you worked with similar sequences before?	No. This is your first year on an iGEM team. You have done some genetic engineering
What additional documentation can you provide connecting the end user to this project?	You are listed as a member of the 2024 TAS Taipei team on the iGEM website. You can also share photos of your lab book or from social media posts on the TAS Taipei bilibili and weibo accounts (in Mandarin).

Institutional Legitimacy Information

Does your institution have legal standing?	Yes, it is a high school.
Does your institution have a mission or purpose that includes life sciences?	Yes, your high school teaches biology, and this is its 6th year running an iGEM team.
Does your institution provide biosafety oversight or training?	Yes, you were responsible for ensuring every member of the wet lab team received biosafety training. Your project is also reviewed for biosafety through the iGEM safety review process.
Does your institution have regulatory approval or official certification to work with life sciences materials?	Not really. You can provide photos of your lab, and links to previous iGEM safety forms that were approved.
Has your work been approved by a biosafety oversight process?	Not really, except for the iGEM biosafety process. You were trained on how to do basic lab safety, but you did not go through an extensive review process for this.
Do you have access to a high-containment lab?	No. You are not very familiar with biosafety levels as a concept; you are working out of your high school lab space.

Flagged Order - Huamei Liu

Sequence

gtagacaacaaattcaacaaagaacaacaaaacgcgttctatgagatcttacatttacctaacttaaacgaagaacaacgaaacgccttcatccaaagtttaaaagatgacccaagccaaagcgctaacctttt
agcagaagctaaaaagctaaatgatgctcaggcgccgaaa

Flags

Virulence Factor Detected	Virulence factor found in bases 21 to 323, WARNING - Gene: (hlyE/clyA) hemolysin HlyE [Hemolysin/cytolysin A (VF1134) - Exotoxin (VFC0235)] [Escherichia coli O157:H7 str. EDL933]
Protein Best Match	hemolysin HlyE [Escherichia coli]

Ivan Zackynski

Title: PhD Student, Department of Biology
Institution: University of Washington
Location: Seattle, USA
Email: zackynih@washington.edu

Advice on playing Ivan: You respond evasively, with few details, asking who the screener is to question your research work. This is because you are afraid that your plan to harm your labmates will be discovered. *Ivan is **not** a legitimate customer for these SOCs.*

Order Information

What is the intended end use for these sequences?	You will explain that this is a pilot project for your (quite famous) PI. In reality, you are a disgruntled PhD student going through some serious mental health issues, and are planning to brew up a batch of toxins with which to poison the labmates you feel treat you with cruelty and undermine your research.
Are you the end user of the ordered sequences?	Yes, both in reality and in your cover story.
Where is your order being shipped?	To the shipping and receiving department of the university.

Individual Legitimacy Information

Have you worked with similar sequences before?	No, you have never ordered toxin sequences before, though you do regularly order synthetic DNA to support your PhD work on mechanisms to improve specificity in multiplexed cell-free diagnostics.
What additional documentation can you provide connecting the end user to this project?	You have an ORCID profile, though no toxin-related publications, and your name appears on the website for the lab you are working for.

Institutional Legitimacy Information

Does your institution have legal standing?	Yes, it is a well-established US university. You can easily provide the website for the university, but would not know where to find information like incorporation documents.
Does your institution have a mission or purpose that includes life sciences?	Yes, it is a well-established US university with several departments related to the life sciences. Your lab is well-known and you can provide numerous scientific publications originating from it.
Does your institution provide biosafety oversight or training?	Yes, everyone who works in a laboratory space in the university is trained in appropriate biosafety procedures.
Does your institution have regulatory approval or official certification to work with life sciences materials?	Sort of, you have several certified biosafety cabinets, and your laboratory complies with biosafety requirements necessary to receive federal funding. The university includes higher-containment labs with more certifications to work with life sciences materials.
Has your work been approved by a biosafety oversight process?	Not directly, but your lab has institutional approvals through a biosafety committee for work with a variety of pathogens.
Do you have access to a high-containment lab?	You have access to a BSL2 laboratory, and regularly conduct testing of diagnostics in this lab.

Flagged Order - Ivan Zackynski

Sequence

gaactgtggctgcaccatctgtcttcatcttcccgccatctgatgagcagttgaaatctggaactgcctctgttgtgtgcctgctgaataacttctatcccagagaggccaaagtacagtggaaggtggataacgccct
ccaatcgggtaactcccaggagagtgtcacagagcaggacagcaaggacagcacctacagcctcagcagcaccctgacgctgagcaaagcagactacgagaaacacaaagtctacgcctgcgaagtca
cccatcagggcctgagctcgcccgtcacaaagagaggataacaacatattccccaaacaatacccaattataaactttaccacagcgggtgccactgtgcaaagctacacaaactttatcagagctgttcgcggt
cgtttaacaactggagctgatgtgagacatgaaataccagtgttgccaaacagagttggtttgcctataaaccaacggtttattttagttgaactctcaaatcatgcagagctttctgttacattagcgctggatgtcacc
aatgcatatgtggtcggctaccgagctggaaatagcgcatatttctttcatcctgacaatcaggaagatgcagaagcaatcactcatcttttcactgatgttcaaaatcgatatacattcgcctttggtggtaattatgata
gacttgaacaacttgccggtagtctgagagaaaatatcgagttgggaaatggtccactagaggaggctatctcagcgctttattattacagtactggtggcactcagcttccaacgtcttcatcttcccgccatctgatg
agcagttgaaatctggaactgcctctgttgtgtgcctgctgaataacttctatcccagagaggccaaagtacagtggaaggtggataacgccctccaatcgggtaactcccaggagagtgtcacagagcaggac
agcaaggacagcacctacagcctcagcagcaccctgacgctgagcaaagcagactacgagaaacacaaagtctacgcctgcgaagtcacccatcagggcctgagctcgcccgtcacaaagagcttcaac
aggggagagtgttag

Flags

Toxin Detected	Regulated gene in bases 109 to 268: FLAG - Gene: Volkensin (Fragment)
Protein Best Match	Preproricin, partial [Ricinus communis]

Klaus Schöns

Title: Postdoctoral Fellow
Institution: University of Freiburg
Location: Freiburg, Germany
Email: schonskl@uni-freiburg.de

Advice on playing Klaus: You respond somewhat irritably to questions, because you have been forced to change synthesis providers due to a new university procurement policy, and are irritated to be asked the same questions you have already answered. *Klaus is a legitimate customer.*

Order Information

What is the intended end use for these sequences?	You are doing basic research into a hypothetical protein from *Legionella pneumophila*. You are part of a laboratory that investigates bacterial toxin function.
Are you the end user of the ordered sequences?	The sequences will be used as part of your research.One of the undergraduate or masters students you supervise may conduct the laboratory work with them.
Where is your order being shipped?	To the shipping and receiving address of the University of Freiburg.

Individual Legitimacy Information

Have you worked with similar sequences before?	You have not worked with *Legionella* before, but others in your lab have. Your PhD was in protein assays and characterization, but did not focus specifically on toxin function.
What additional documentation can you provide connecting the end user to this project?	You have an ORCID profile showing several related academic publications, and your name appears on the website for the lab you are working for. If needed, you can provide grant documentation and your employment contract, but you don't feel like you should need to.

Institutional Legitimacy Information

Does your institution have legal standing?	Yes, it is a well-established German university. You can easily provide the website for the university, but would not know where to find information like incorporation documents.
Does your institution have a mission or purpose that includes life sciences?	Yes, it is a well-established German university with several departments related to the life sciences. You can provide numerous scientific publications originating from the university, as well as the lab in which you are doing your postdoctoral work.
Does your institution provide biosafety oversight or training?	Yes, everyone who works in a laboratory space in the university is trained in appropriate biosafety procedures.
Does your institution have regulatory approval or official certification to work with life sciences materials?	Yes, though you are not familiar with the details. (The university laboratories are registered with local regulators as conducting recombinant DNA research, and the PI in your lab has previously obtained relevant licenses to work with controlled toxins, but this falls outside of your role.)
Has your work been approved by a biosafety oversight process?	Yes, and you are able to provide contact information for an institutional biosafety officer, as well as documentation of the review process. However, you find it takes a long time for the biosafety officer to get back to you, so you will push to not provide that documentation unless it is absolutely necessary.
Do you have access to a high-containment lab?	For this project, you will be working in BSL-2+. There is a BSL3 lab on campus, but you do not have direct access to it.

Flagged Order - Klaus Schöns

Sequence

atggacaacgatcaactgtcagttattcattatttgtgggtaggattacctactaaaatgaattcgtctgcgagcattgctggtcacgatgttgccggtcctatcaaaatggcaaaagcacttcaatcgcaagctcaggg
taaaccgattaaccccattaaattttggtgtttggagcaacatcaagatttctatcaaaaactctttaatgacgctggcgtgactatagaggtatgcggaatagaagagataataagacaggagtctcaaggagagtt
gcgtgatcaagcgctgtttgtacaaaaatttctaaacgataaccttccttcaggacaaaatagcgatataaagcaaagagtgatgttcaaagatttattttcattgttcttattagtttgccaaccaggatatttccttgaca
ctaatgtatttccggcaacagatagagaaattaatttacctggcagagatacggttgctactgctaaatcaggatttcagaaatcaaatgacttttatttaatgtattctcctcaacgcaacgatagtcaaatgtcagaaa
ttttgatatatgggcaagaaatccatcctttggaaatctattatgttttagtggtagtcacgttccctatattgaaatcgaagatttgggtgtccaaaaaaataagttacaaatcatattgggggctaaattaccagggttgtt
ttttggcttgaacgcaataatcgtcaattgtttgaagagaatttaccttatggagacattaatcaacaattggcttgttctttcagcaggaagtctctcgcaccatgtagcgtatgctatgcagaagaagctgagccgga
aaagttactagctatgccatttaccaccaatgaagcttatattgcaaccaaagcgaatcaaatttttctatgtgaataaaacgacaaaagaatgtgtctgtgtctctgatcagttttcttctttatttaattgcttgccggatag
atttcataaagaaaaaattagactagcgtcagaatctgagattaatcaattaatcagatccctcgataatttttcacatccttcttatattgttaatattgctgatggaacattacttcatcatgcggtattaagtaataatatta
aacaggtcataatgttgcttgaattgggggctaaatttgatttaaaagccagctatcaaataaaaccggaaggtactgttttaaaatttacaccattagaacttgcaaattatttaaaacatgaagcgatagcaactttat
tacaatctcatcgcatcagtagtacgcatgtactctccgagatttcctcagaatcccgaataatgccagaggctacaatccaatcaagcgatgaggtgattcaacccagcagcaaagacgagcgaggtttcacgc
ctgaacaaataatggttatcaaagtggctatgcaagaggcgctaagcagtatgggaacaagtcattttgtaagtggcagagatgataaaaaggaatctcttgttcaatgcaaatcagcatttgaaaacgcaccaa
atgggacagaacgccatgaagctttacggaattttgtaacagcagcttcaacgccaagacaagggttactcaattttcttcctgcggcttatggggaaacccgttctgccatagcgtttttgagcatattaaaaagca
ggattcctctttatttgatgcattgaagcctatgcgtgaagacaaggggcccgaagttgcgcggcaatcaaattcatcagtagaaacagaggcaacgaagccagtagcccgggctcgagagatcatgctgcatta
taaactagcgatgcaggcagagaggcgcggtgaattgaaaacagacaatgactctgttgactcccaaaatttatgtggcactaggttaaaaaat

Flags

Regulated Pathogen Match	Best match to sequence(s) WP_011212979, AOU51025 at bases 1 - 1917 found in only regulated organisms - **Species**: Legionella pneumophila (taxid(s): 66976, 91891, 1383063, 1383064, 1383065, 1383066, 446, 297246) (100.0 percent identity to query) - **Description**: hypothetical protein [Legionella pneumophila]