**Worksheet 4 – Assessing New Sequences**

After your presentation to Dr. Shipton regarding your first results, she was very pleased with your initial progress and encouraged you to continue to look at the remaining samples. The package that arrives contains three different artifacts. The enclosed note from Dr. Shipton indicates that these are only parts of the samples that have been collected in the field. Her note also indicates that field analysis indicates the samples had coarse hair.

You quickly proceed through the DNA isolation process and load your USB-style sequencer with the samples before you go to dinner. Since you are feeling adventurous, you order momo (dumplings) and a curry dish called gorkhali lamb. Returning to the lab, you realize that the short sequence reads are complete and you proceed to analyzing the sequences (shown Figure 1) using your previous bioinformatics skills.

>**Kongma1**

CTTAGCCCTAAACATTAATAGTTACATTAACAAAATTATTCGCCAGAGTACTACAAGCAACAGCTTAAAACTCAAAGGACTTGGCAGTGCTTTATATCCCTCTA

>**Kongma2**

CTTAGCCCTAAACATAAATAGTTTAGTATAACAAAACTATTCGCCAGAGAACTACTAGCAATAGCCTAAA

ACTCAAAGGACTTGGCGGTGCTTTACACCCCTCTA

>**Kongma3**

TAGCCCTAAACACAAATAGTTTTATAAACAAAACTATTCGCCAGAGTACTACCGGCAATAGCTTAAAACT

CAAAGGACTTGGCGGTGCTTTATACCCTTCTA

Figure 1. FASTA alignment of Kongma sequencing.

**Question 1**: Can you identify the Kongma artifacts through sequencing of the 12S rRNA gene? If so, what might they be and why? *Remember in your analysis that synthetic DNA sequences are not representative of existing species.*

|  |  |
| --- | --- |
| Kongma1 |  |
| Kongma2 |  |
| Kongma3 |  |

**Question 2**: What might you be able to talk with Dr. Shipton about regarding your results? Do you think that there might be other molecular steps that you could take to further your understanding of these results or to support any potential findings?