Clarification of Mutations 3, 4 and 5

For mutation 3, you'll search **for the first and last occurrence** of **`TTC`** - AND the **first and last occurrence** of **`TTT`**.

So there will be 4 possible changes that will occur. For:

`xxxTTTxTTTxxxxTTCxxTTTxx`

you would change three:

`xxxTTCxTTTxxxxTTTxxTTCxx`

In addition, the matches must be non-overlapping; so, a situation like

`xxxxTTTTCxx`

may exist and when the mutation is applied, would result in

`xxxxTTCTCxx`

(the only change was to the 3rd T from the left).

Clarification of Mutations 3, 4 and 5

For mutation 4, you'll search for the **first occurrence** of either **GGA**, **GGC**, **GGG**, or **GGT**. And, you'll search for the **last occurrence** of one of those too.

So, there are 2 possible changes that will occur. For:
xxxGGAxxGGCxxGGCxxGGCxxx
the result would be:
xxxGGxxGGCxxGGCxxGGxxx

The matches must be non-overlapping; so **xxxGGGGAxxx** would result in **xxGGGAxx** (removing the 3rd G from the left). But, **xxxGGGGGAxxx** would result in **xxxGGGGxxx** (2 removals: 3rd G and final A).

Clarification of Mutations 3, 4 and 5

For mutation 5, you'll search for the **first occurrence** of either **ATA**, **ATC** or **ATT**. And, you'll search for the last occurrence of one of those too.

So, there are 2 possible changes that will occur. The pattern is the same as for mutation 4, just different target sequences.

Again, the non-overlapping rule for matches; so for:
xxxATATCxxx
the result would be:
xxxATATTCxxx