Basic Parts

FOR ANTIDOTE

MSMEG_5998 (BBa_K2382001)
This is an enzyme that could degrade aflatoxin with the aid of coenzyme F420. It belongs to the F420H2-dependent reductases family from *Mycobacterium Smegmatis*.

F420-Dependent Glucose-6-phosphate Dehydrogenase (BBa_K2382002)
The working condition of MSMEG_5998 includes the help from coenzyme F420. F420-dependent glucose-6-phosphate dehydrogenase (FGD) is the enzyme that reduces the F420 being used by MSMEG_5998 and make it available again.

T7 promoter & Lac operator and RBS from PET-29a (BBa_K2382003)
This part originated from pET-29 a (+) Vectors, and it is composed of T7 promoter, Lac operator, and RBS.

Thioredoxin with polylinker(BBa_K2382004)
This part previously functioned as a DNA recombination and repair protein in *E. coli*. It is also found that Thioredoxin is capable of increasing enzyme activity of our protein, MSMEG5998.
We designed a polylinker that has multiple restriction cutting sites at the end of this part for future iGEM teams who want to make their protein more effective

Thioredoxin-MSMEG_5998 fusion protein (BBa_K2382009)
This is a fusion protein of Thioredoxin (BBa_K2382004) and MSMEG_5998 (BBa_K2382001). The ability of degrading aflatoxin is better than MSMEG_5998 alone.

Thioredoxin-FGD fusion protein (BBa_K2382015)
This is a fusion protein of Thioredoxin (BBa_K2382004) and FGD (BBa_K2382002).

FOR TEST STRIP

Anti-aflatoxin scFv (with start codon) (BBa_K2382007)
This is the single chain variable fragment (scFv) of an antibody that have ability of binding aflatoxin. This part basically shares the same sequence with BBa_K2382011, except for a start codon ATG at the beginning.

6X His tag (Codon optimized) (BBa_K2382008)
This part is a codon optimized 6X His tag for *E.coli*.

Anti-aflatoxin scFv (BBa_K2382011)

This is the single chain variable fragment (scFv) of an antibody that have ability of binding aflatoxin.   Since bacteria cannot produce the whole antibody, we decide use scFv to replace it. It contains two polypeptide chains linked by a GS linker.

EAAAK rigid linker (BBa_K2382012)

A rigid linker that links two proteins to form one fusion protein. It repeats amino acids EAAAK three times to maintain distance of two proteins and preventing from interrupting each other while folding.

RFP with EAAAK linker and His Tag (BBa_K2382013)

This is a fragment of BBa_K2382010. We designed a restriction site, BamHI, before EAAAK rigid linker, so future iGEM teams could take advantage of this part to fuse their proteins with RFP as indicator.

This is also an improvement of previous BioBrick Part (BBa_E1010). It encodes an RFP that have the same amino acids as BBa_E1010 and having a His Tag at the end. Therefore, a fusion protein with this part may have red color and the ability to be purified easily.

RFP without barcode (BBa_K2382014)

This part encodes a RFP that has the same amino acids as BBa_E1010. The barcode of BBa_E1010 is removed, so this part does not contain stop codon. Therefore, future iGEM teams could fuse other protein at the C terminal of this RFP.