

PREDICTION MODEL OF DNA SPLICING LANGUAGES

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1. ABSTRACT

A user friendly interface (prediction model) is constructed by using Microsoft Visual C Sharp (C#) to predict the persistency and permanency properties of two stages splicing languages as well as the relations between the families of stage one and stage two splicing languages. Up to two stages DNA splicing system, this system works based on the developed mathematical theorems by using a Yusof-Goode (Y-G) approach. On the biological side, this software is replaced with wet-lab, which optimize time and money.

3. THEOREMS

- Theorem 1:** If each of the initial strings in a Y-G splicing system has only one recognition site, then no distinct splicing languages will be produced at stage two. □
- Theorem 2:** If each of the initial strings in a Y-G splicing system has two recognition sites, then the set of stage two splicing languages always contain the set of stage one splicing languages. □
- Theorem 3:** The set of two stages splicing languages which is produced by a Y-G splicing system consisting two initial strings (with one cutting site) and two rules with disjoint crossing sites and palindromic sequences is persistent. □
- Theorem 4:** The set of two stages splicing languages which is produced by a Y-G splicing system consisting of two initial strings (with one cutting site) and two rules with disjoint non-palindromic crossing sites (or sequences) is persistent. □
- Theorem 5:** The set of two stages splicing languages which is produced by a Y-G splicing system consisting two initial strings (with one cutting site) and two rules where the whole sequences of one rule is palindromic and the other is non-palindromic is persistent. □
- Theorem 6:** The set of two stages splicing languages, that is produced by a Y-G splicing system consisting two initial strings (with two cutting sites) and two rules with disjoint crossing sites and non-palindromic sequences, is persistent. □
- Theorem 7:** The set of two stages splicing languages, which is generated by a Y-G splicing system consisting two initial strings (with two cutting sites) and two rules with disjoint crossing sites and palindromic sequences, is persistent. □
- Theorem 8:** The set of two stages splicing languages that is produced by Y-G splicing system consisting two initial strings (with two cutting sites) and two rules where the sequence of first rule is palindromic and the sequence of the second rule is non-palindromic, is persistent. □

2. INTRODUCTION

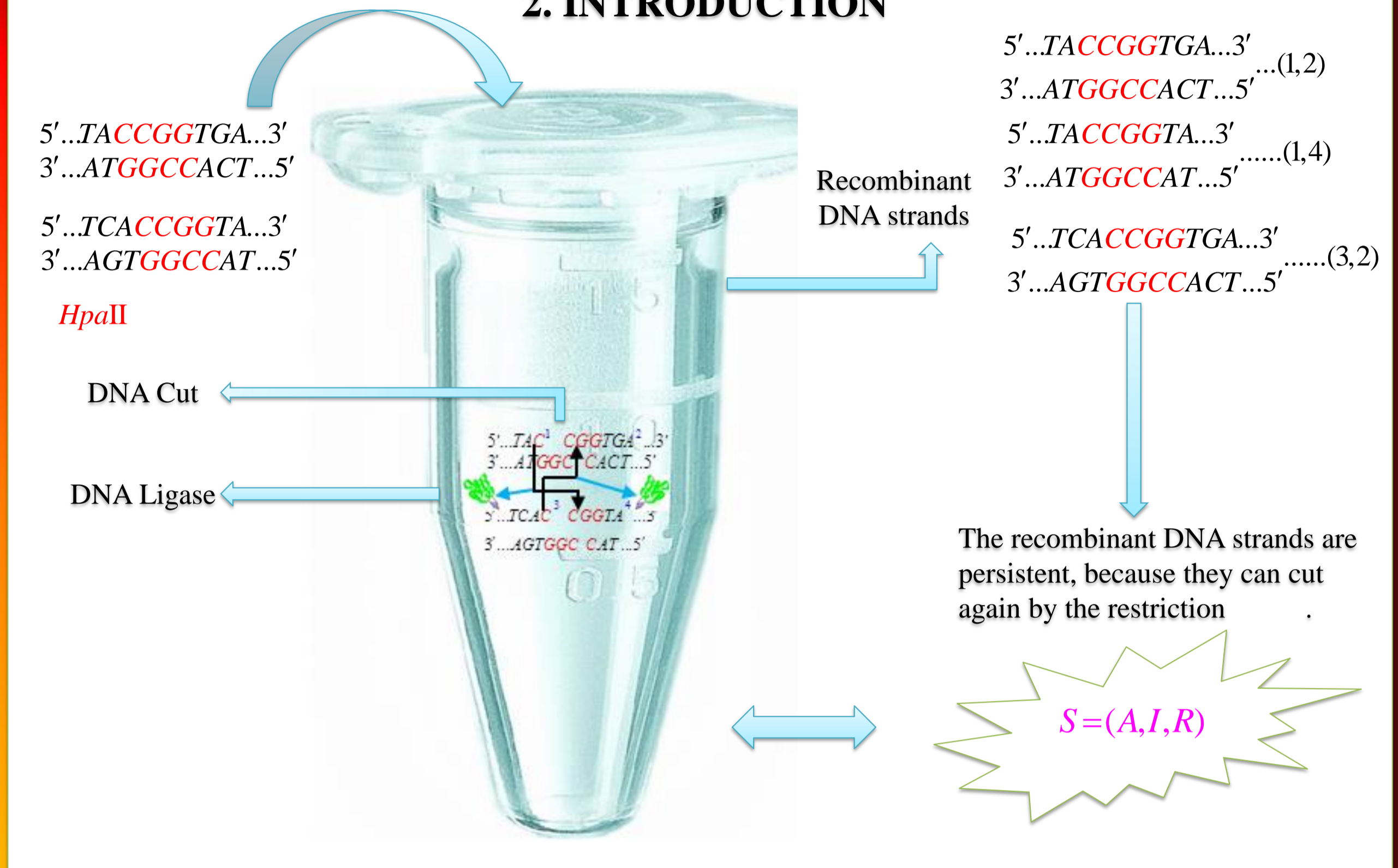


Figure 1: Test Tube of Recombination Process

4. FLOWCHART OF USER FRIENDLY INTERFACE

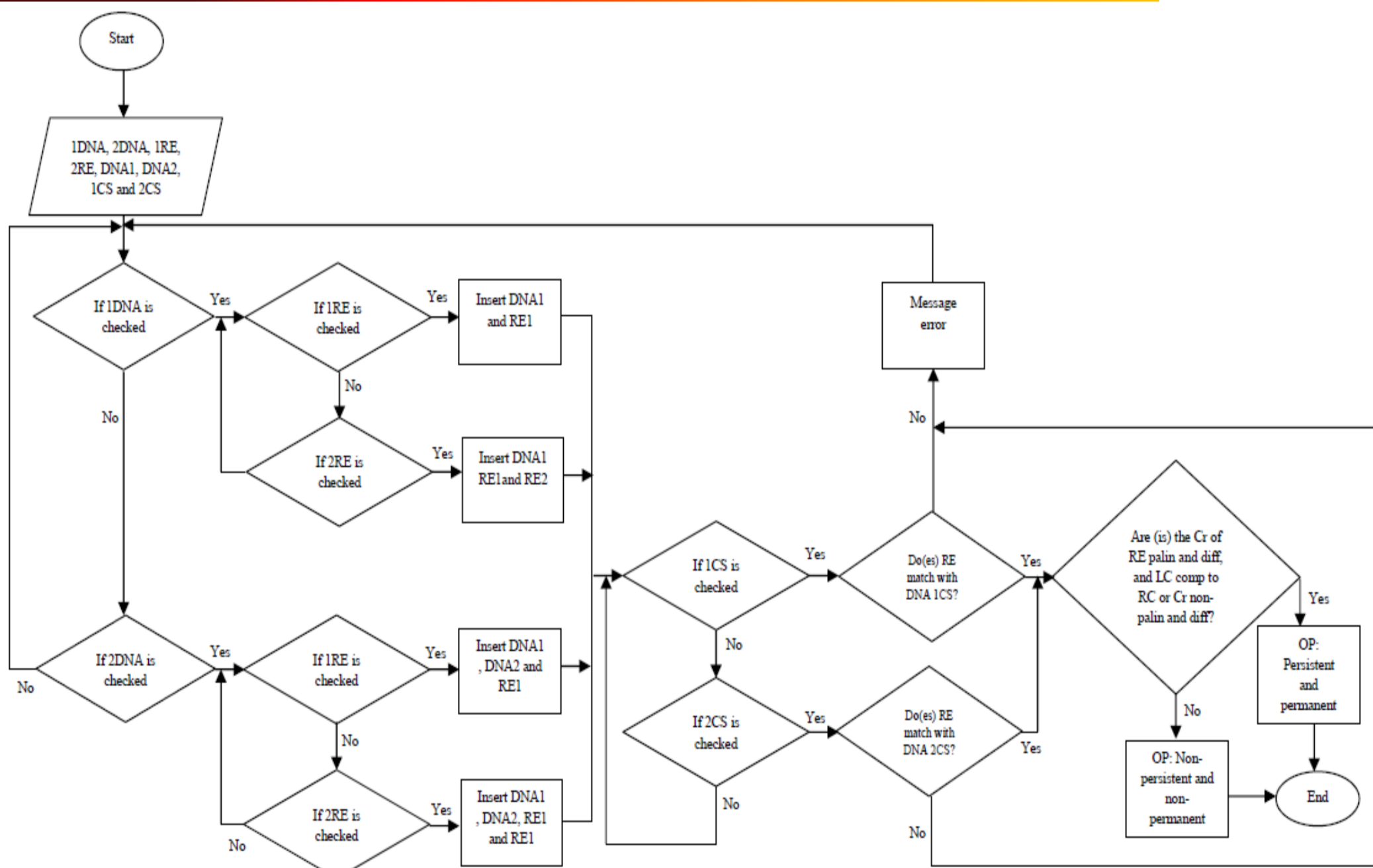


Figure 2: Flowchart for Persistency and Permanency Predictor

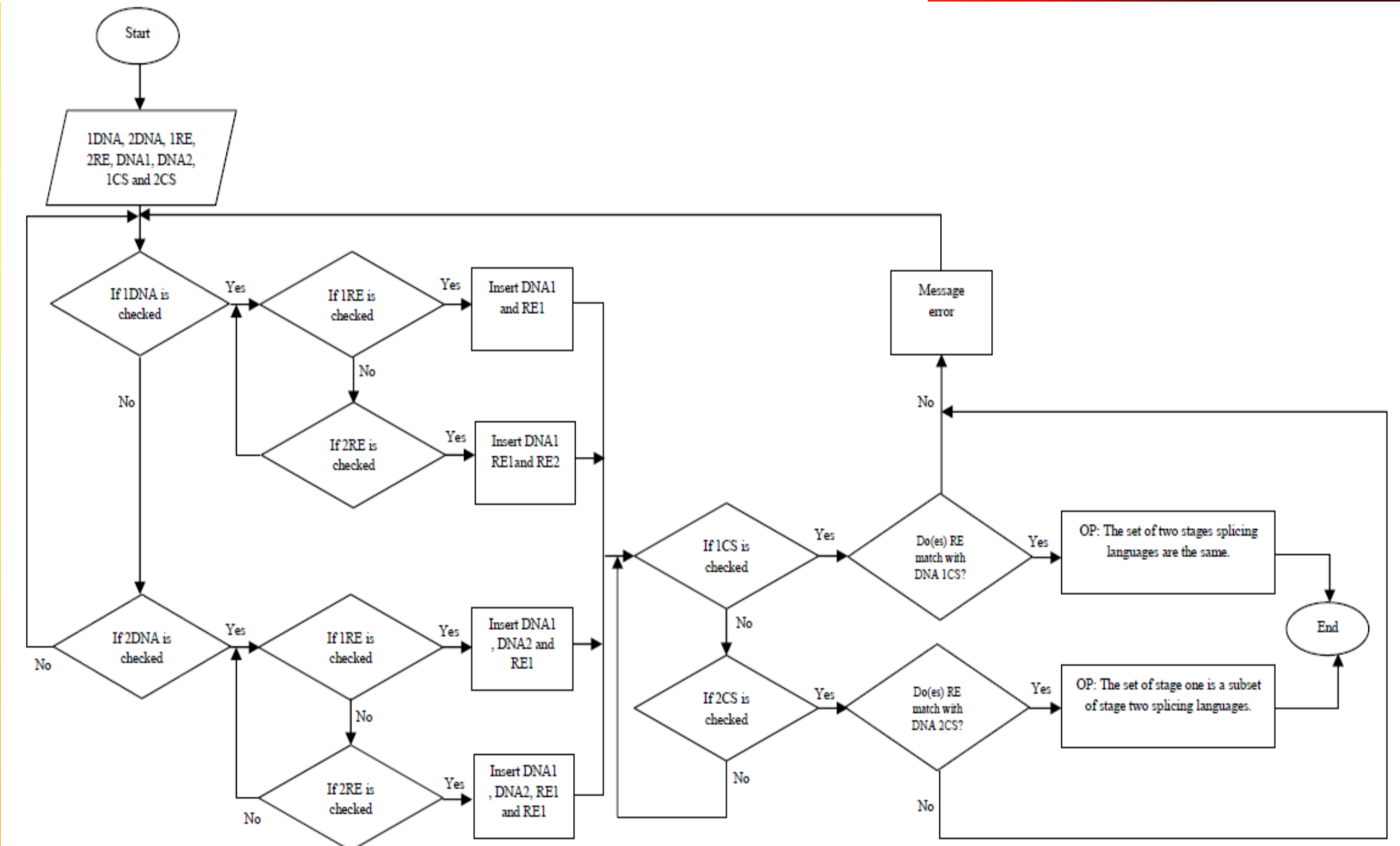


Figure 3: Flowchart for Predicting the Relations Between Two Stages Splicing Languages

DNA Splicing System Predictor

Choose Number of DNA
 1 DNA 2 DNA

Choose Number of Enzymes
 1 Enzyme 2 Enzymes

Cutting Site Number
 1 Site 2 Sites

Show the relationship

Check Reset

Persistent and permanent, because enzymes have palindromic sequences or non-palindromic crossings.

Figure 3: Predicting the Relations Between Two Stages Splicing Languages via UI

DNA Splicing System Predictor

Choose Number of DNA
 1 DNA 2 DNA

Choose Number of Enzymes
 1 Enzyme 2 Enzymes

Cutting Site Number
 1 Site 2 Sites

Show the relationship

Check Reset

The set of stage one DNA splicing languages is a subset of stage two DNA splicing languages

Figure 5: Predicting the Relations Between Two Stages Splicing Languages via UI

CONCLUSION

As a conclusion, this system works on predicting the persistency and permanency of DNA splicing languages as well as relations between two stages DNA splicing languages which is applicable in DNA recombination process. Besides, it benefits to certain organization such as NEB.

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