**Guideline of Liver Cancer Biomarker Annotation**

The main purpose of LiverCancerMarkerRIF is to look for evidential sentences that support a gene/protein as a biomarker of liver cancer. Sentences containing gene/protein terms are classified as supporting or non-supporting sentences, with the latter further divided into four different categories including named entity recognition error, irrelevancy, negation, and indefinite.

**Supporting sentences:** Sentences that affirm the gene/protein as a biomarker of liver cancer. It usually consists of sentences that directly describe the gene/protein as a biomarker, or those that indicate a change in the gene/protein level is correlated with the disease.

Examples in which the gene of interest is considered as a biomarker for liver cancer:
- Staging according to AFP level is an appropriate predictor of prognosis in noncirrhotic patients with HCC.
- AFP-L3 is strongly correlated with the HCC patient outcome: a high level of AFP-L3 is indicative of a poor patient prognosis.
- Increases in serum AFP levels are observed in patients with chronic liver diseases such as liver cirrhosis.

**Non-supporting sentences:** Sentences that contain the gene/protein term, but does not define it as a biomarker. These include sentences containing named entity recognition errors (1), mere occurrence of gene/protein terms (2), obvious negations (3), or those in which the correlation of the gene/protein with liver cancer is implicated rather than a straightforward statement (4).

Examples in which the gene of interest is **not** considered as a biomarker for liver cancer:

1. **Named entity recognition error:**
   - To assess the safety and efficacy of trans-arterial chemo-embolization (TACE) in very elderly patients.

2. **Irrelevancy:**
   - The serum levels of NGF were measured by enzyme-linked immunosorbent assay.

3. **Negation:**
   - The expression of **Cyclin D1** was not correlated with CDK4 expression, tumor grades, survival rate, and any clinicopathological parameters.
4. **Indefinite:**
   - The specificity of **AFP-L3** and **DCP** in the studied population was 78.5 and 100%, respectively.