**1. Graph Convolutional Neural Network (GCNN) for Structure Analysis:** In the example, they chose a GCNN to analyze the molecular structure of drugs. GCNNs are well-suited for processing graph-structured data like molecules. They capture relationships between atoms and bonds effectively, allowing the model to learn hierarchical features in the molecular graph.

**Alternative Options:**

* **Graph Isomorphism Networks (GINs):** These are an alternative to GCNNs that can capture graph information using different aggregation functions. They can be more powerful for certain graph learning tasks.
* **Message Passing Neural Networks (MPNNs):** These models generalize over a range of graph neural network architectures, allowing for flexible message passing schemes.

**2. Chemical Property Analysis:** In the case of chemical property analysis, since you're dealing with structured data (value/property pairs), you might not need a complex neural network architecture. Instead, you could use traditional machine learning models or simpler neural networks.

**Alternative Options:**

* **Linear Regression:** If your chemical property data is straightforward and doesn't involve complex relationships, a simple linear regression model could be sufficient.
* **Feedforward Neural Network:** A basic feedforward neural network can handle tabular data and might be more than enough to capture chemical property relationships.

**3. BiLSTM for Side Effect Analysis:** The BiLSTM in the example is used to analyze side effects, likely in a sequence-to-sequence manner. BiLSTMs are suitable for sequential data analysis, capturing dependencies between different elements in the sequence.

**Alternative Options:**

* **Transformer-based Models:** Transformers have become the state-of-the-art for sequence-to-sequence tasks due to their attention mechanisms, such as the popular BERT, GPT, and T5 models.
* **Recurrent Neural Networks (RNNs):** Instead of a BiLSTM, you could consider using a traditional RNN or other variants like GRU (Gated Recurrent Unit).

When designing your hybrid model, consider the following points:

* **Data Preprocessing:** Ensure proper preprocessing for each component's input data to make it compatible with the chosen model.
* **Model Complexity:** Depending on your dataset size and complexity, using more complex models might lead to overfitting. Simpler models might be more suitable.
* **Interpretablity:** GCNNs and simpler models like linear regression can offer more interpretability, which might be valuable when dealing with the effects of chemical properties.