

# CellDesigner 4.0 alpha

**Akira Funahashi**

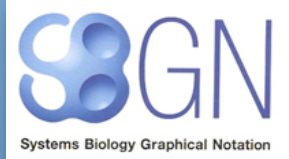
Kitano Symbiotic Systems Project, JST,  
ERATO-SORST

8th Oct. 2006

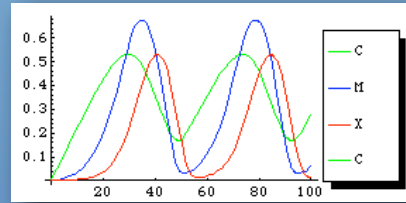
# CellDesigner



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MYO1/YHR023W Summary

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**MYO1/YHR023W Summary**

Summary | Locus History | Literature | Gene Ontology | Phenotype | Interactions | Expression | Protein

**Alternative single page format**

**MYO1 BASIC INFORMATION** [View References]

Standard Name: MYO1  
 Systematic Name: YHR023W  
 Feature Type: ORF, Verified

Description: Type II myosin heavy chain, required for wild-type cytokinesis and cell separation; localizes to the actomyosin ring; binds to myosin light chains Mlc1p and Mlc2p through its ICI and I22 motifs respectively (1, 2, 3, 4 and see [Summary Paragraph](#))

**GO Annotations**

Molecular Function:
 

- microfilament motor activity (CTAP)
- axial bud cells selection (MB)
- cytokinesis (IMP)
- response to osmotic stress (BAP)
- contractile ring (neuro) Saccharomyces

Cellular Component: MYOsin

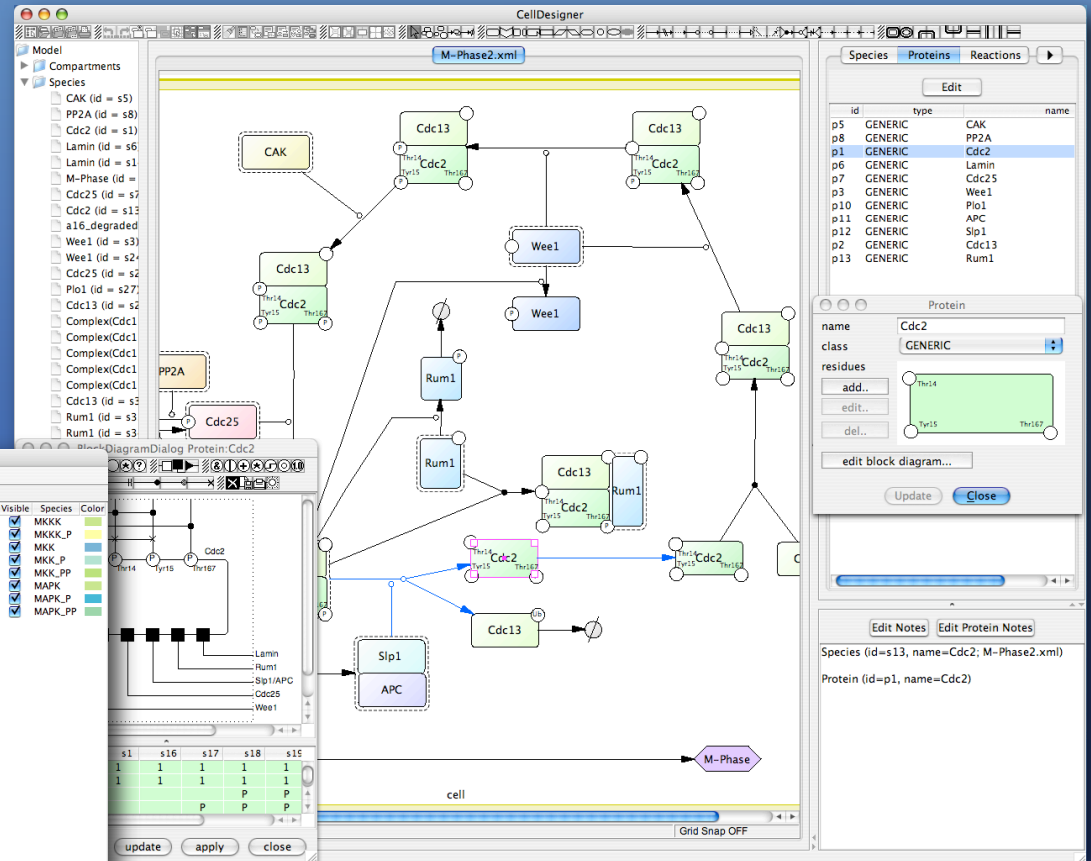
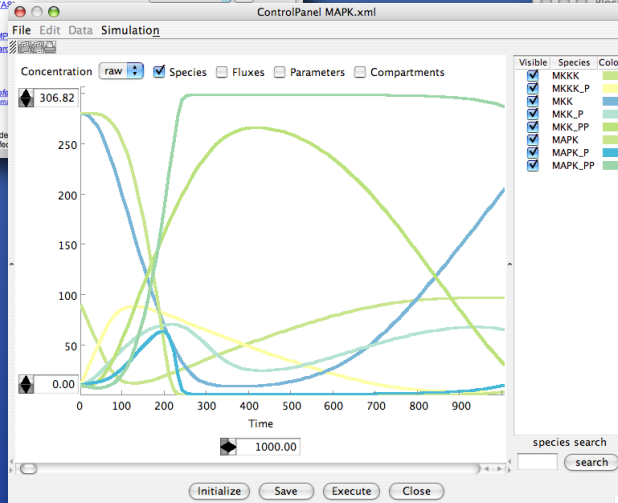
Name Description: MYOsin

Gene Product: class II myosin

**Mutant Phenotype**

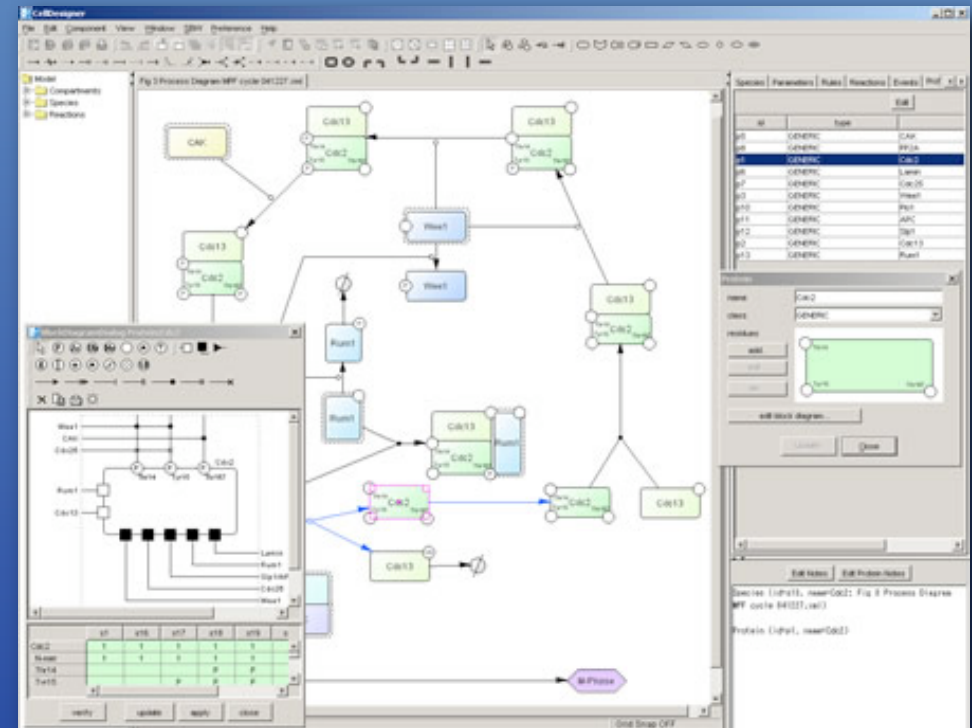
Systematic deletion:
 

- inviable
- inviable
- inviable, but has severe growth defects
- inviable, but has mild growth defects



# CellDesigner

- Import/export SBML using libSBML
- Graphical notation (SBGN)
- Built-in simulator (SBML ODE Solver)
- Integrate with Analysis tool, other simulators through SBW
- Database connection
- Export to PDF, PNG, etc.
- Freely available
- Supported Environment
  - Windows (2000 or later)
  - Mac OS X
  - Linux



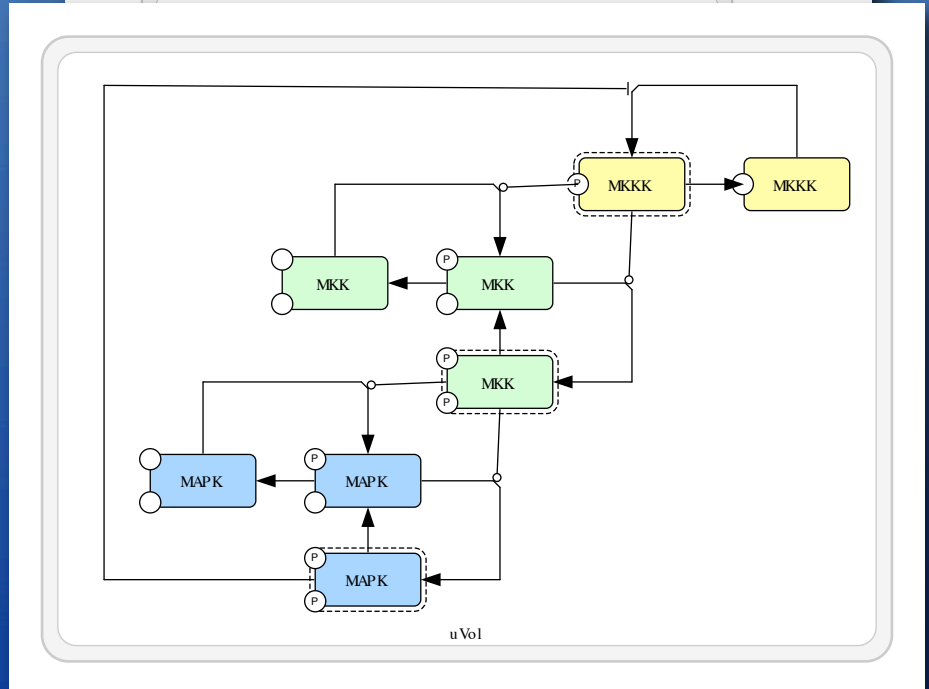
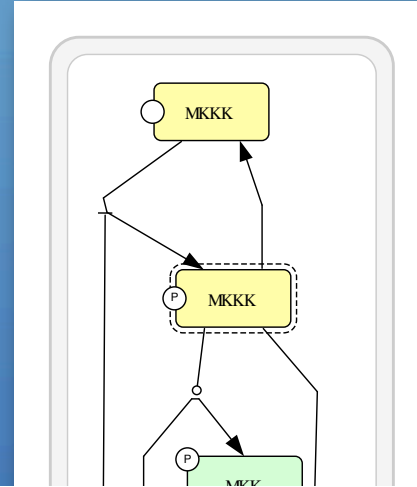
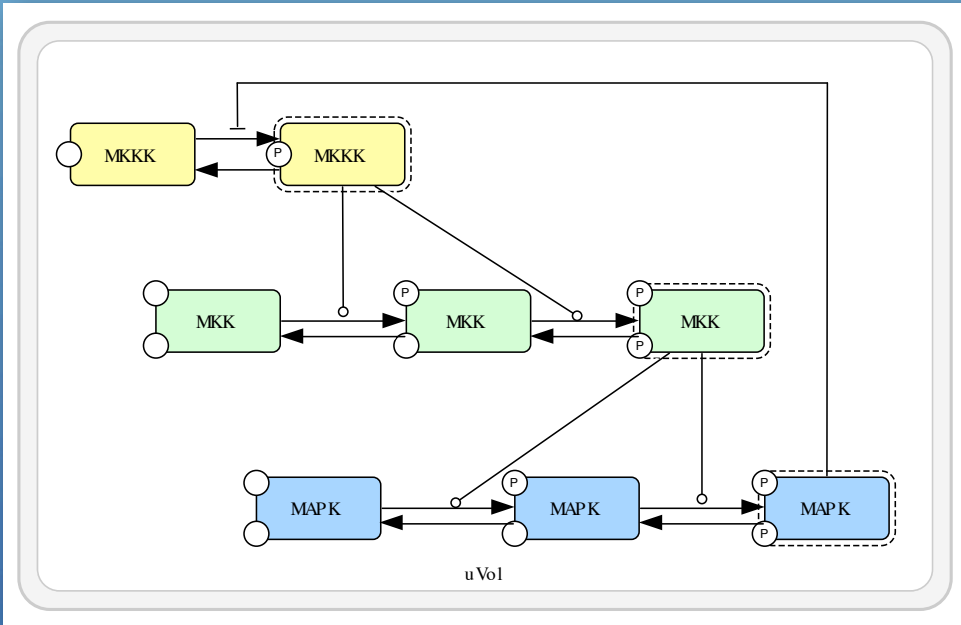
<http://celldesigner.org>

# CellDesigner 4.0 alpha

- Auto-layout function
- Plugin development framework
- GUI improvement



# Auto-layout



# Plugin development

- Develop plugin on Eclipse
- Call plugin from [Plugin] menu on CellDesigner

```

private JLabel jLabelY = null;
private JTextField textName = null;
private JTextField textId = null;
private JTextField textX = null;
private JTextField textY = null;
private JPanel jPanel = null;
private JButton jButtonGET = null;
private JButton jButtonADD = null;

public static SamplePlugin plug;

/**
 * This is the default constructor
 */
public SamplePluginDialog(SamplePlugin _plugin) {
    plug = _plugin;
    initialize();
}

public SamplePluginDialog(Frame arg0) throws HeadlessException {
    initialize();
}

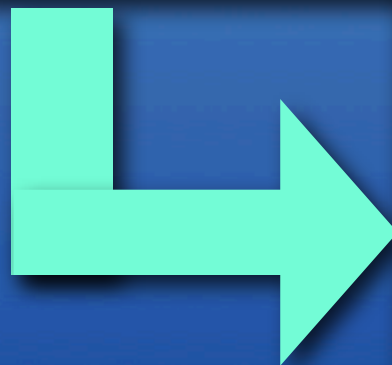
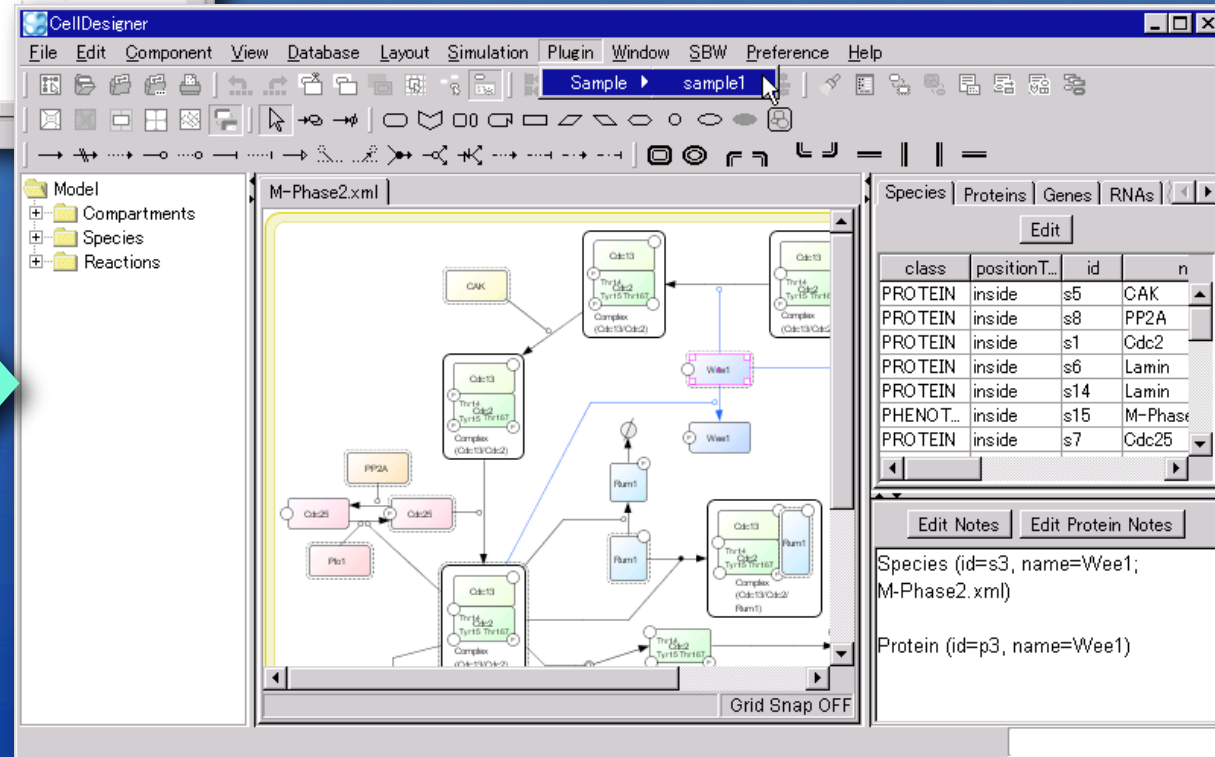
public SamplePluginDialog(Frame arg0, boolean arg1)
    throws HeadlessException {
    initialize();
}
    
```

```

public class SamplePlugin extends CellDesignerPlugin {

    PluginMenuItem item;

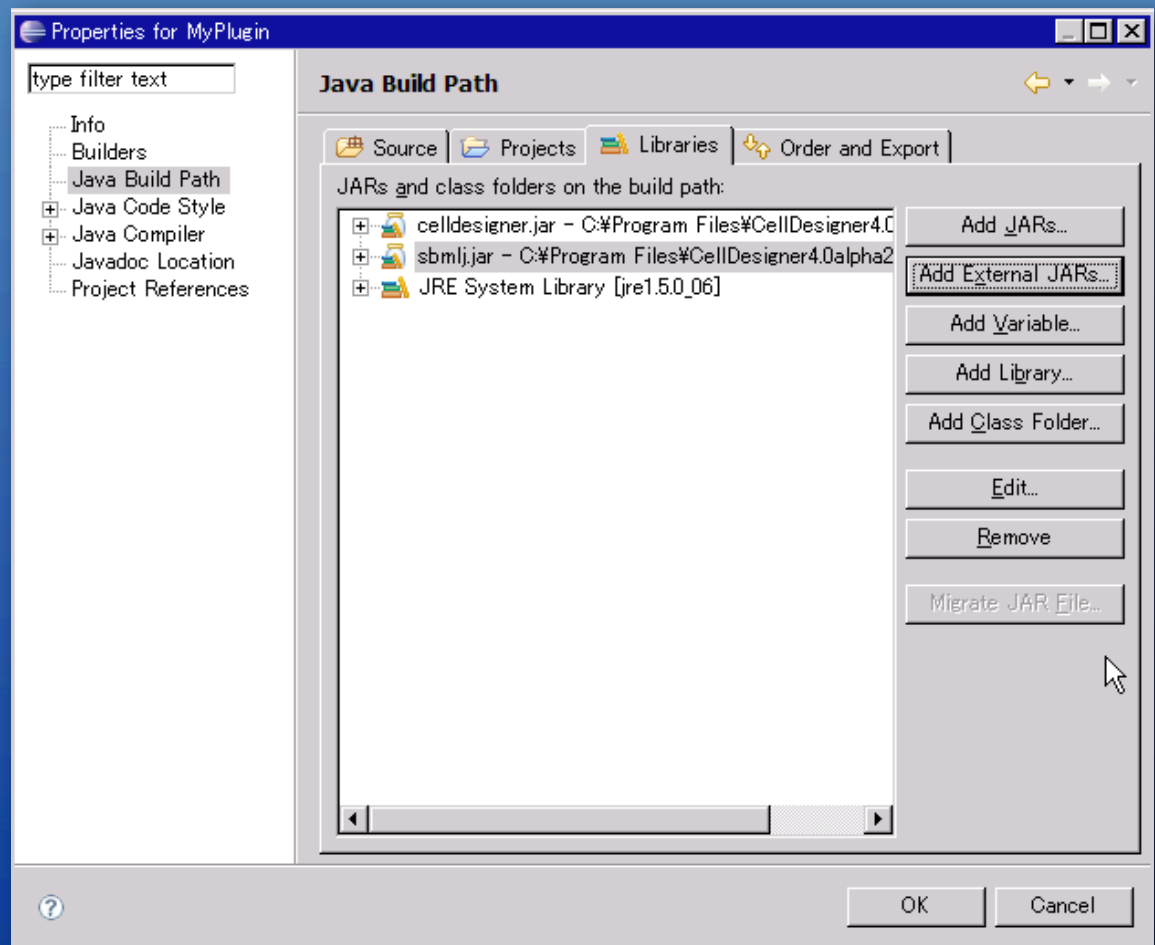
    /**
     *
     */
    }
    
```



- CellDesigner 4.0 alpha
- JDK 1.5.0 or 1.4.2 (for MacOSX 10.3)
- Eclipse (tested on 3.2.1)

# Libraries

- Add following .jar files to your class path
  - C:\Program Files\CellDesigner4.0alpha\exec\celldesigner.jar
  - C:\Program Files\CellDesigner4.0alpha\lib\sbmlj.jar

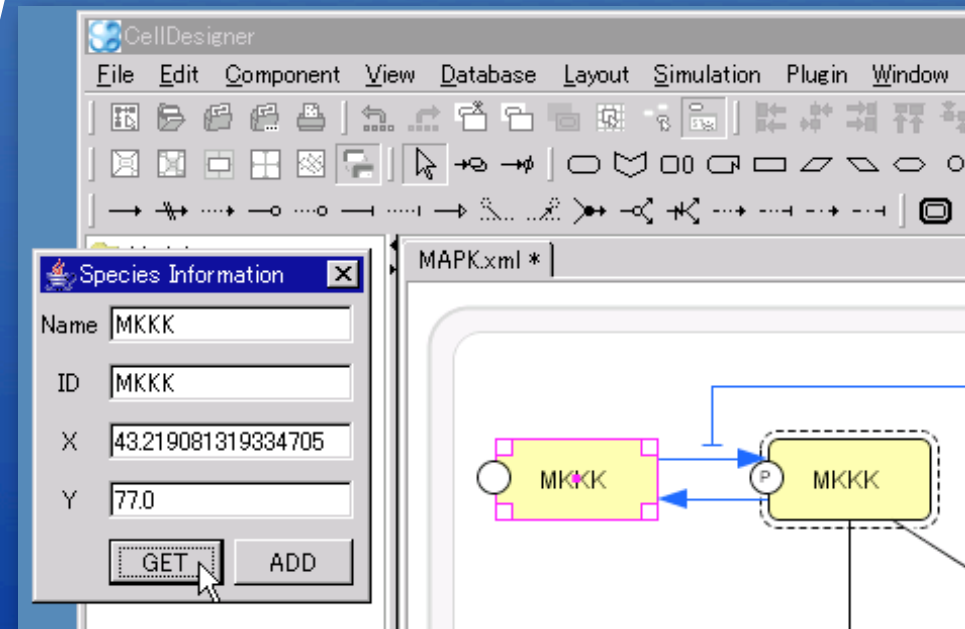
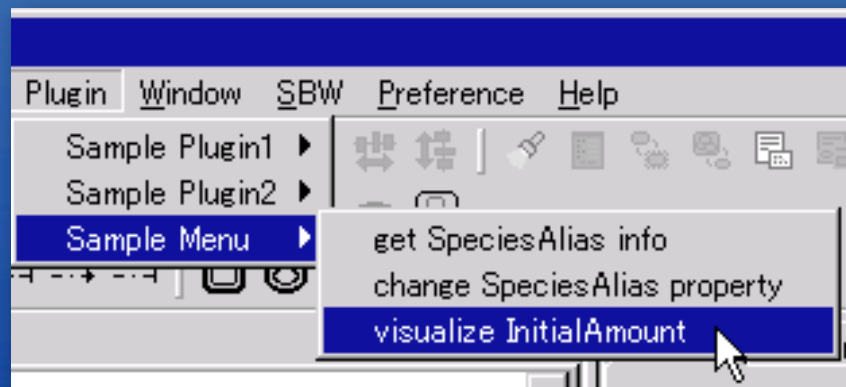


- Documents

- documents/PluginTutorial40A.pdf
- documents/plugin/ ... Javadoc

- Sample code

- <http://celldesigner.org/funasample.zip>
- samples/plugin/src/



# Example code

## ● Get Species properties from CellDesigner

```
private void getSelectedSpeciesProperties() {
    PluginListOf lof = plugin.getSelectedSpeciesNode();
    if (lof != null) {
        // get PluginSpeciesAlias
        PluginSpeciesAlias alias = (PluginSpeciesAlias)lof.get(0);

        // get position
        double x = alias.getX();
        double y = alias.getY();

        // get Species
        PluginSpecies sp = alias.getSpecies();
        String name = sp.getName();
        String id = sp.getId();
    }
}
```

(100, 150)



S1

# Future plan

- **SBML L2v2 support**
- **Export SBML Layout extension**
- **Update with new SOSlib (SBML ODE Solver)**
- **Integrate with COPASI**
- **Check & support new SBW modules**
- **Import models/kineticLaws from SABIO-RK**

## CellDesigner

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