A sample research poster

Jean-luc Doumont

In these pages, you will find an example of what we at Principiæ consider an effective research poster. This poster was originally created by Karen Rosier, then revised/redrawn by myself, with Karen’s help. It is designed as an A4 page, which can be scaled to the required printing dimensions (typically A0) but also printed as such on A4 paper as a handout. The back of the handout can provide extra content, such as contact details, methods, and references, as shown on page 3. A small flyer, shown on page 4, can help promote the poster during the conference.

For more on the design choices behind this poster, see our related booklet *Effective conference posters* and our flagship book *Trees, maps, and theorems.*
Deficiency of the serine hydrolase PREPL results in impaired regulated secretion

Karen Rosier, Luc Régal, and John Creemers

Congenital PREPL deficiency causes a rare metabolic disorder

- PREPL is a homologue of propyl endopeptidase, a serine peptidase which cleaves small peptides (less than 3 kDa)
- is a cytoplasmic enzyme, highly expressed in brain, less so in heart, kidney, skeletal muscle
- has confirmed catalytic activity, but no identified substrate

We investigated how PREPL deficiency impairs secretion

We hypothesize that PREPL has palmitoyl thioesterase activity, removing palmitate from cysteine in proteins involved in regulated secretion

Silencing of PREPL impairs secretion in β-TC3 cells

<table>
<thead>
<tr>
<th>Stimulated secretion</th>
<th>WT</th>
<th>KO</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREPL siRNA</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>scr siRNA</td>
<td>.46</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Basal secretion</th>
<th>WT</th>
<th>KO</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREPL siRNA</td>
<td>.13</td>
<td>.13</td>
</tr>
<tr>
<td>scr siRNA</td>
<td>.20</td>
<td>.29</td>
</tr>
</tbody>
</table>

PREPL KO somatotrophs exhibit disturbed GH secretion

<table>
<thead>
<tr>
<th>(stimulated - basal)/total</th>
<th>WT</th>
<th>KO</th>
</tr>
</thead>
<tbody>
<tr>
<td>p &lt; .05</td>
<td>.18</td>
<td>.20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>basal/total</th>
<th>WT</th>
<th>KO</th>
</tr>
</thead>
<tbody>
<tr>
<td>p &lt; .05</td>
<td>.016</td>
<td>.026</td>
</tr>
</tbody>
</table>

In contrast, PREPL KO somatotrophs do not differ in dense-core vesicles

- WT: 12 220 DCVs, 0.29 / µm², 3.49 / µm²
- KO: 11 445 DCVs, 0.11 / µm², 3.66 / µm²

PREPL is inhibited by an acyl-protein thioesterase inhibitor

- DMSO
- Palmostatin M

Palmitoylated protein → palmitoyl–protein thioesterase → cysteine + palmitic acid
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KU Leuven
Human Genetics
Leuven, Belgium

**Competition experiment with serine hydrolase inhibitor and FP-biotin**

**No inhibition**

```
Inhibitor
```

```
Bacterial PREPL
```

```
+ Streptavidin-HRP
```

```
FP-biotin
```

**Inhibition**

```
Inhibitor
```

```
Bacterial PREPL
```

```
+ Streptavidin-HRP
```

```
FP-biotin
```

Child patient photo taken from

*Jaak Jaeken et al., John Creemers et al.*

Deletion of PREPL, a gene encoding a putative serine oligopeptidase, in patients with hypotonia-cystinuria syndrome


Baby patient photo and β-TC3 cell data taken from

*Luc Régal et al., John Creemers et al.*

PREPL deficiency with or without cystinuria causes a novel myasthenic syndrome

*Neurology* 82, 1254–1260 (2014) © 2016 Karen Rosier
Deficiency of the serine hydrolase PREPL results in impaired regulated secretion

Thursday, 16:30–18:00
in the Foyer (South side)

Karen Rosier, Luc Régal, and John Creemers
Human Genetics, KU Leuven (Belgium)

Congenital PREPL deficiency causes a rare metabolic disorder (growth-hormone deficiency, feeding problems, hypotonia). We thus investigated how PREPL deficiency impairs secretion and hypothesize that PREPL has palmitoyl thioesterase activity.

Are you curious about what we found and how we designed our experiments? Come see our poster on Thursday at 16:30.