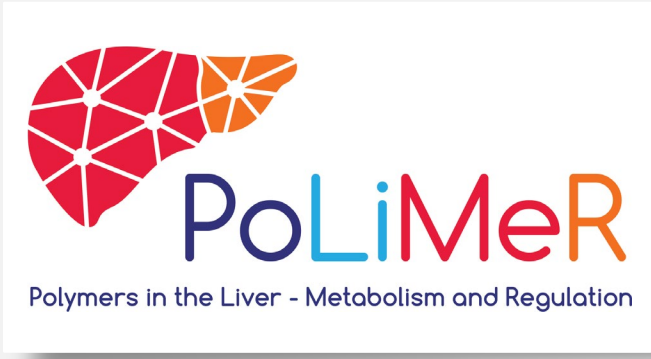
# PoLiMeR data management




Olga Krebs

Heidelberg Institute for Theoretical Studies

26 November 2019, Groningen

# Project Dashboard

Period: last 12 months

## Most viewed assets

Type: All

| | |
|---|---|
| Hepatocytes contribute to residual glucose production… | 802 |
| A systems study reveals concurrent activation of AMP… | 761 |
| Translational Targeted Proteomics Profiling of Mitocho… | 731 |
| Python presentation by Adelaide Raguin, Friday May … | 267 |
| Agenda for PoLiMeR kick-off meeting | 28 |
| Model A | 20 |
| Presentation - Meeting Supervisory Board | 20 |
| Assignments dynamic modelling | 14 |
| Human cell cultures samples | 13 |
| Lecture on Dynamic modelling and enzyme kinetics by … | 13 |

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| | |
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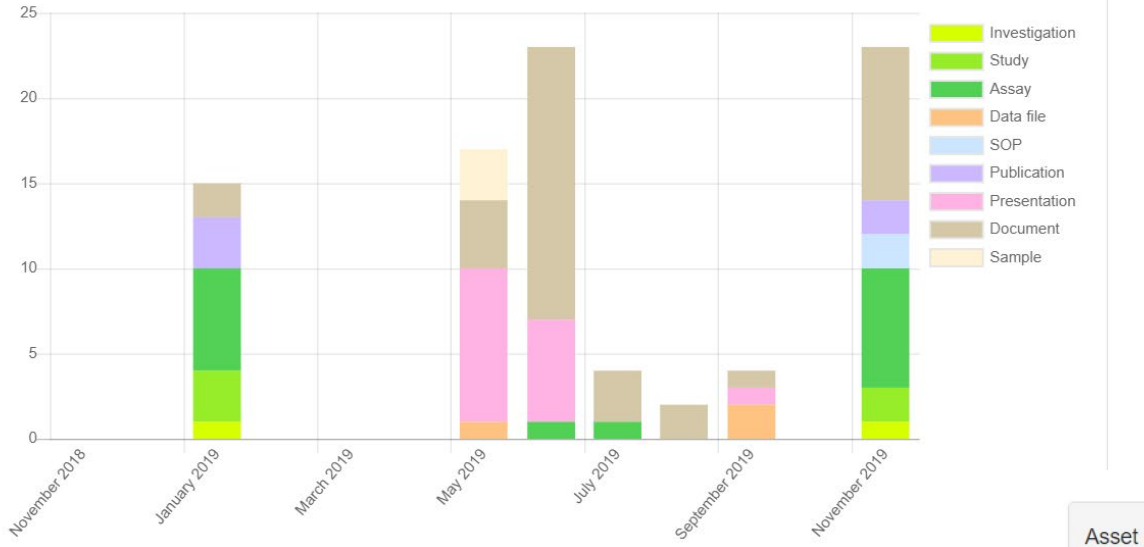
| Python presentation by Adelaide Raguin, Friday May 3… | 28 |
| Model A | 27 |
| Assignments dynamic modelling | 18 |
| Lecture on Dynamic modelling and enzyme kinetics by … | 17 |
| Model B | 15 |
| Career Development Plan - Year 1 | 12 |
| Presentation - Meeting Supervisory Board | 11 |
| The answers for the afternoon tutorial by Barbara Bakker | 10 |
| Answers to exercise 1 | 8 |
| Model B with inhibitors | 8 |

## Contributions

Interval: Month



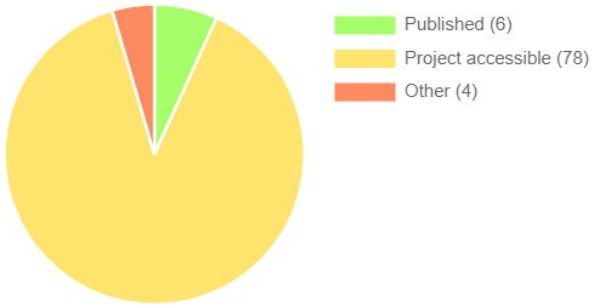

Mouse over a bar to see the breakdown of contributions for that month. Clicking on a type in the legend will hide it from the chart.

## Most active contributors

| | |
|---|---|
| Olga Krebs | 81 |
| Karen Van Eunen | 35 |
| Barbara Bakker | 12 |
| Adelaide Raguin | 6 |
| Oliver Ebenhöh | 2 |
| Wolfgang Müller | 1 |
| Maaike H. Oosterveer | 1 |

## Asset accessibility

Type: All




# Related items

People (31) | Institutions (15) | Investigations (2) | Studies (5) | Assays (15) | Data files (3) | SOPs (2) | Publications (5) | Presentations (16) | Events (5) | Documents (37)

# PoLiMeR : Data Management Plan

PoLiMeR
Polymers in the Liver - Metabolism and Regulation

Polymers in the Liver – Metabolism and Regulation
GA N° 812616
Start Date: 01/10/2018 – Duration: 48 months
Coordinator: B.M. Bakker, UMCG

## D6.3 – "Data and model management plan(DMP)

**WP6 – Data and model management**

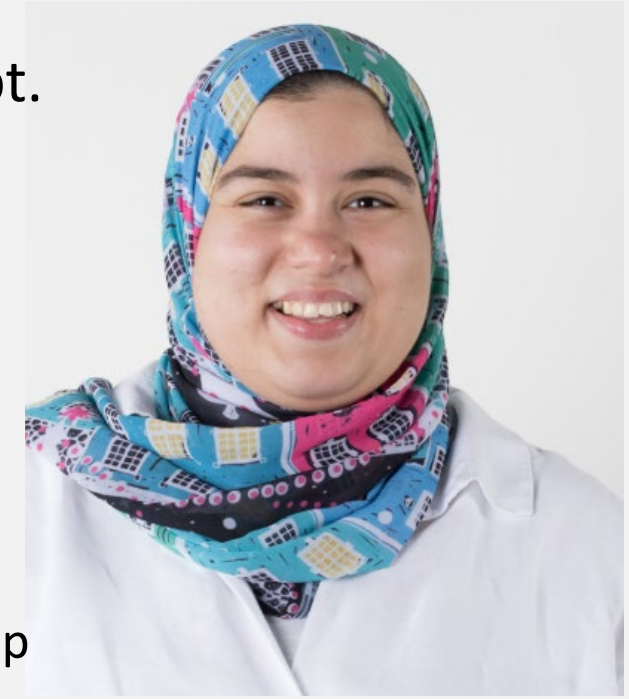
| | |
|---|---|
| **Author (s):** | **Olga Krebs (HITS), Karen van Eunen (UMCG)** |
| Reviewer(s): | Barbara Bakker (UMCG) |
| Identifier: | D6.3_HITS_v1 |
| Dissemination level: | CO |
| Date: | 20190926 |
| Number of pages: | 17 |

# PhD at HITS **Ghadir Mobasher**

B.Sc. In Software Engineering of Computer and Information Sciences

Master in Computer and Information at the British University in Egypt.

Assistant lecturer and a Faculty of Informatics & Computer Science, The British University in Egypt in Cairo



- I am an enthusiastic, adaptive and fast learning person with a broad and acute interest

in the discovery of new data mining and deep learning techniques

- I particularly enjoy collaborating with scientist from different displaces to develop new skills and solve new challenges

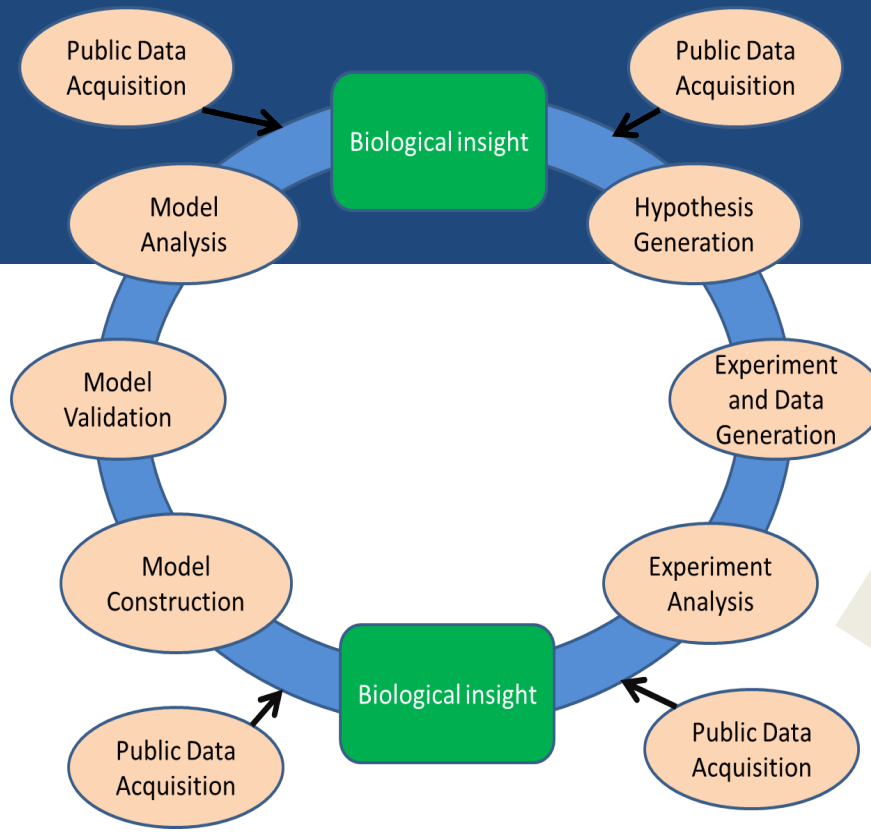
- I have professional experience in the field of Data Science, technical expertise and collaboration skills needed to solve advanced problems related to Data Mining

- I use algorithmic approaches to solve the class imbalance problem generating the smallest most accurate decision tree.

# PhD student 2 : Data and model management and information retrieval

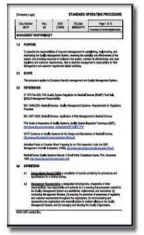
- The PhD student will provide FAIR data management services to the PoLiMeR consortium based on the FAIRDOM Hub (the data sharing site hosted at HITS) and on GitLab.
- The PhD student will use the database generated in the PoLiMeR project together with pre-existing and public data in the to determine how changes in data collection, metadata quality and data feature extraction affect the information that can be found.
- The PhD student will seek to improve existing tools for data collection as well as querying at critical points.
- finding out how to tailor information retrieval and information storage algorithms such that they work best in combination?
- finding out the best combination of data enrichment/search algorithm in real life, in an exciting application area: The life sciences.

# Systems Biology




## SOPs

Not just experimental procedures

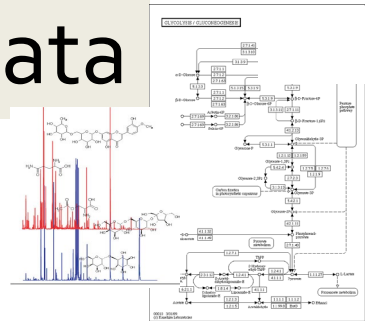


## Samples

## Models

$$v_{FBPA/ase} = \frac{V_{Mf} \cdot \frac{GAP}{K_{M,GAP}} \cdot \frac{DHAP}{K_{M,DHAP}}}{\left(1 + \frac{GAP}{K_{M,GAP}} + \frac{DHAP}{K_{M,DHAP}} + \frac{GAP \cdot DHAP}{K_{M,GAP} \cdot K_{M,DHAP}}\right)}$$

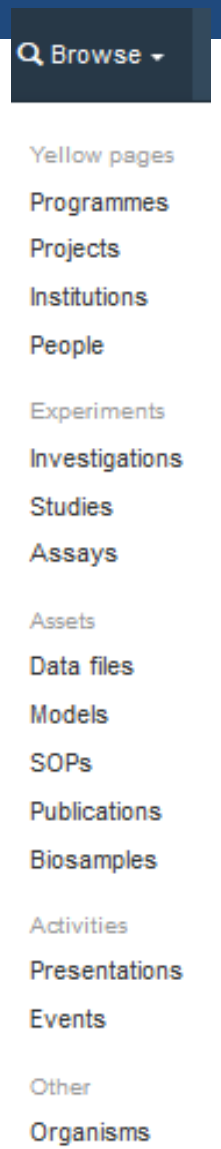
## Data

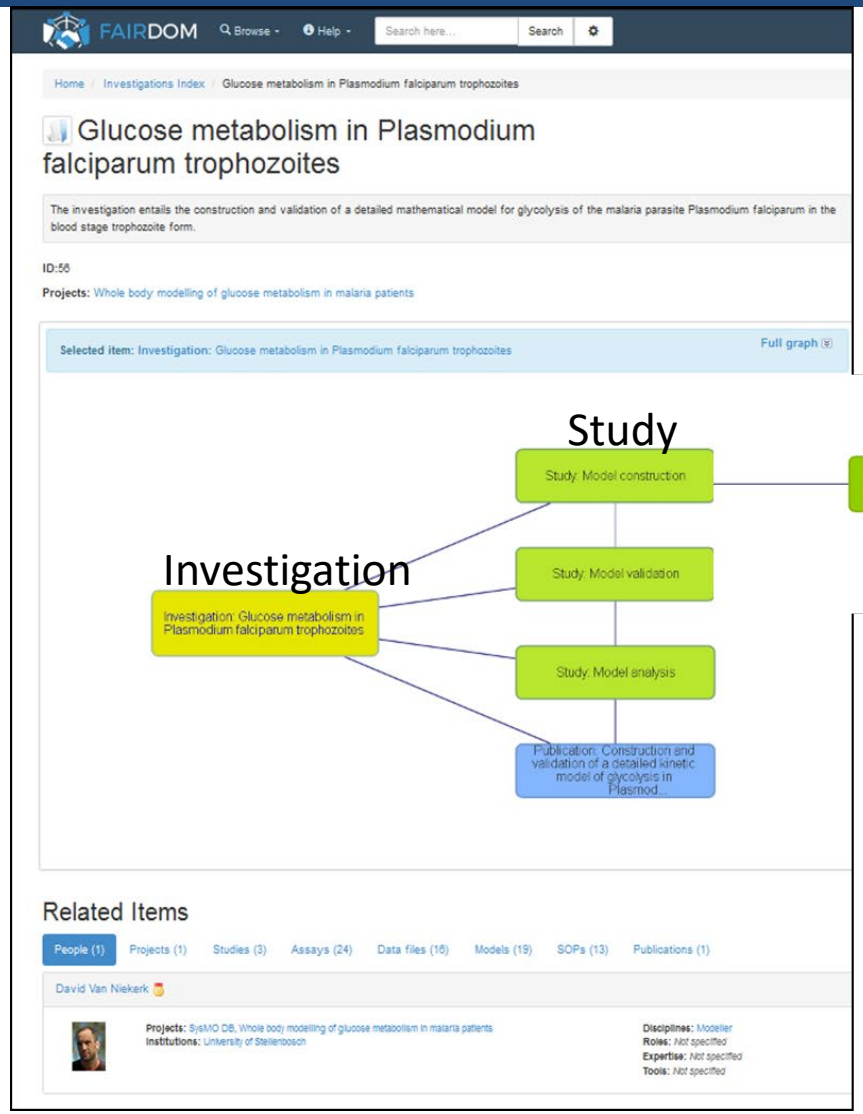


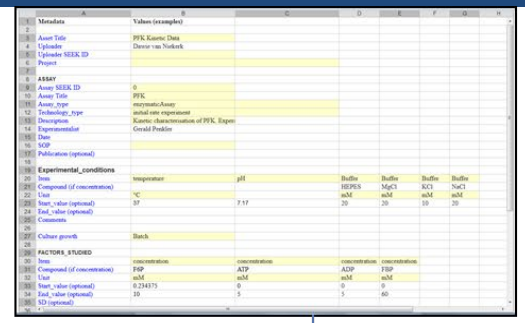
## Publications


FAIRDOM

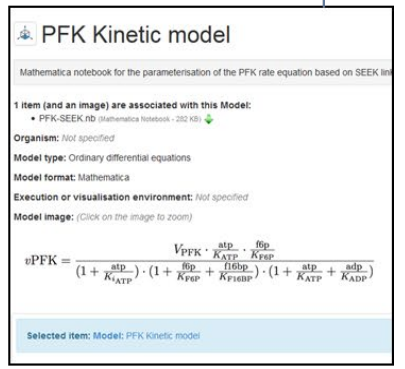
# ….organised in an ISA (Investigation, Study, Assay/Analysis) format.






FAIRDOM

# Why SOPs

- Sharing experimental protocols
- Agreement within projects on strains and conditions
- Good scientific practice
- Understanding data, experiments and results for verification or for modifying for use in other experiments

# SOPs in SEEK

Home > SOPs Index > Introduction of shRNAs, miRNAs or anti-microRNAs into primary human hepatocytes with lentivirus

## Introduction of shRNAs, miRNAs or anti-microRNAs into primary human hepatocytes with lentivirus

Download SOP | View content

Here we used VSV-G-pseudotyped, EGFP-expressing lentiviral vectors to develop an efficient gene transfer protocol to modify gene expression in primary human hepatocytes (by RNAi). The protocol comprises the production of recombinant viruses as well as the steps for efficient delivery of short-hairpin RNA (shRNAs), microRNAs or anti-microRNAs to human hepatocytes. On average infection efficiencies of over 95% are achieved at relatively low multiplicity of infection (MOI), which effectively reduces the amount of preparative work required per experiment. Depending on the laboratory equipment available, we provide here two alternative workflows, which can be easily adapted in the lab. The procedure of virus production with subsequent titer determination takes approx. 6 to 10 working days. The procedure of viral infection of hepatocytes until effects can be measured takes approx. 3 to 5 days. This protocol should be helpful to study many aspects of functional genomics in primary human hepatocytes.

**Contributors**
[Maria Thomas]

**Attributions**
*None*

**Scales**
*Not Specified*

**Filename:** Lentiviral production and infection_SOP_04042011.pdf

**Format:** PDF document

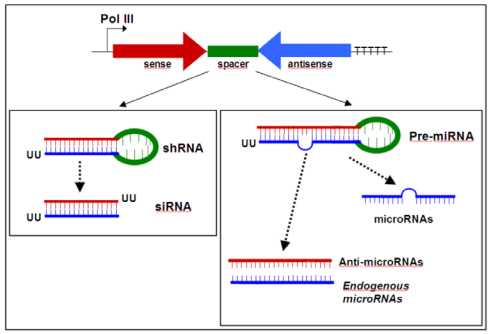



**Fig.1:** Schematic presentation of designed template sequences which are processed intracellularly into short hairpin RNAs, microRNAs or anti-microRNAs. The stem-loop structures consisting of both the sense and anti-sense strands of the targeted sequence are separated by a loop sequence.

## MATERIALS

### REAGENTS/KITS

BLOCK-iT™ Lentiviral RNAi Expression Kit (Invitrogen#49-4400)

ViraPower™ Lentiviral Gateway Expression Kit (Invitrogen#K49-6000)

miRZip™ Lentivector-based Anti- MicroRNAs (System Biosciences#MZIPxxxPA/AA-1)

ed microRNAs (System Biosciences#PMIRHxxxPA/AA-1)

### PROCEDURE

NOTE: all the steps marked with "S" should be performed following recommended guidelines for working with BL-2 organisms (Germany: S2 lab).

**1. Preparation of HEK293FT cells.**

For cultivating HEK293FT cells, add G148 (Geneticin, final concentration 500 µg/ml) to the DMEM culture medium with components (see Reagent Setup). The cells should be passaged at least 1-2 times after thawing to adapt to the culture conditions. Three days prior to transfection, plate out the cells at a density of approximately $3{,}5*10^6$ cells/per 1 T175 flask in 30 ml of medium with components and G148 to achieve optimal phase of cellular growth.

# SOPs

## SOP for generating a Genome Scale Metabolic model of M. hyopneumoniae

MycoSynVac - Engineering Mycoplasma pneumoniae as a broad-spectrum animal vaccine

Standard Operating Procedure describing the process and software used in generating a Genome Scale Metabolic model of M. hyopneumoniae.
Used software:
Pathway tools
PathLogic
Cobrapy
the Cobra Toolbox
libSBML

Download

**Creator:** Niels Zondervan
**Contributor**: Niels Zondervan

**Investigations:** Modelling of M. pneumoniae metabolism
**Studies:** Genome-scale, constraint-based metabolic modeli...
**Assays:** Construction of a Genome Scale Metabolitic mode...

## DNA, RNA, Protein extraction from mineral samples

SysMetEx

SOP for extracting DNA, RNA and Proteins from the mineral pellet of a bioleaching culture using hot acidic phenol.
Current draft.

Download

(Show All)

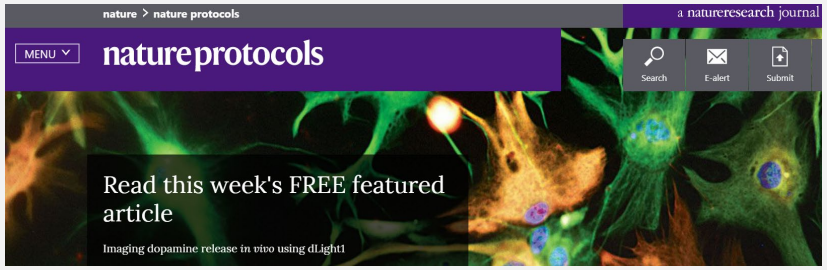
**Creators:** Malte Herold, Mario Vera, Soeren Bellenberg
**Contributor**: Malte Herold
**DOI:** 10.15490/fairdomhub.1.sop.249.2

**Investigations:** *1 hidden item*
**Studies:** *1 hidden item*
**Assays:** *2 hidden items*

Created: 1st Apr 2016 at 12:01, Last updated: 17th Jul 2018 at 23:45

# Public Repositories

- Nature Protocols – published SOPs with links to publications – defined format
- Cold Spring Harbour Protocols – proprietary published SOPs – defined format
- Open Wetware – public access, no recommended format




# Your Own SOPs

- Where are they now?
  - Wikis
  - Hard disks
  - Lab computers
  - Lab books
- FAIRDOM Hub
- Document store
- Indexed SOPs

# Standard Operating Procedures
## writing instructions

PoLiMeR
Polymers in the Liver - Metabolism and Regulation

# Nature protocol format (suggested)

**Protocol Title**

- **Authors**
- **Keywords**
- **Abstract**
- **Materials**
  - **Reagents**
    **Reagent Set Up**
  - **Equipment**
- **Time Taken**
- **Procedure**
- **Troubleshooting/ Critical Steps**
  **Anticipated Results**
  **References**

# SOP structure

## Author checklist

- ✓ provide a list of keywords that can be used as search terms.
- ✓ indicate the corresponding author(s) and provide email address
- ✓ SOP version number, date of creation

## Abstract

- ✓ start by introducing the methods used in the protocol, including references to papers that catalogue their development and previous use.
- ✓ provide (all) information about the design of experiments that readers would need to adapt the protocol to apply to their own experimental situation.
- ✓ SOP for e.g. microarray experiments should adhere to the standards outlined in the MIAME guidelines . Please ensure relevant aspects are described in the Experimental Design and Procedure sections.
- ✓ include a sentence to explain how long the protocol takes to complete.

# SOP structure

## Materials

- ✓ list reagents and pieces of equipment individually , (with supplier details and catalogue numbers?)
- ✓ indicate whether item should be made up fresh or can be stored and, if so, under which conditions and for how long.
- ✓ 13. **UNITS!!!** e.g. for % unit, state whether this is wt/vol or vol/vol, add a CAUTION note to any potentially harmful items and explain the danger plus precautions that should be taken when handling them.

- ✓ add a CAUTION note to any potentially harmful items and explain the danger plus precautions that should be taken when handling them.

## Procedure

- ✓ procedure can take the form of a continuously numbered set of steps (i.e. use 1, 2, 3, 4; not 1.1, 1.2 etc.), with numbering continuing from subsection to subsection.
- ✓ If there are any additional procedures that do not fit into the continuous flow of numbered steps, these can be referred (as e.g. web resourse or another SOP in e.g. FAIRDOMHub)
- write the procedure steps in the active tense, e.g, “Add 50ml of solution X.”
- add timing information to all steps

# SOP structure

include a Troubleshooting section. This should preferably take the form of a table with four columns, entitled ‘Step’, ‘Problem’, ‘Possible reason’ and ‘Possible solution’.

# SOP structure

## Anticipated results

- ✓ demonstrate the types of results that can be expected from the protocol and explain how they can be interpreted. Figures showing examples of good or poor quality results can also be referred to from this section.
- ✓ ensure data is fully explained (n values given, error bars defined, etc.). Graphs showing individual data points are often preferable to those showing means and error bars. If there are fewer than 6 data points, individual data points must be provided. Please ensure any statistics are applied appropriately

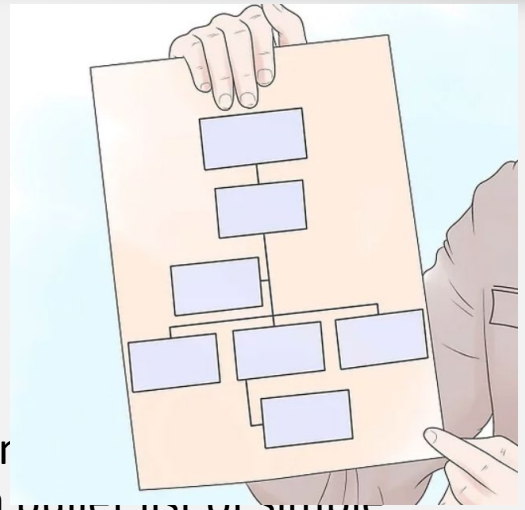
(**Know when your numbers are significant** http://www.nature.com/nature/journal/v492/n7428/full/492180a.html).

## Figures/Tables/Boxes

- l Figures/Tables/Boxes must be cited in the main text and should be numbered in the order in which the citations appear in the text.
- submit figures individually in one of our accepted file formats (preferably eps or tif).
- provide a title and figure legend for each figure. Individual panels cannot be cited from the title. Figures legends should fully explain the corresponding figure. Please include legends in the main manuscript.

## References

# Choose your format



There is no right or wrong way to write an SOP.
Use the existing SOPs as a template.
If not, you have a few options:

- A simple steps format. This is for routine procedures that are short, have few possible outcor
to the point. Apart from the necessary documentation and safety guidelines, it's really just a bullet list of simple sentences telling the reader what to do.
- A hierarchical steps format. This is usually for long procedures -- ones with more than ten steps, involving a few decisions to make, clarification and terminology. This is usually a list of main steps all with substeps in a very particular order.
- A flowchart format. If the procedure is more like a map with an almost infinite number of possible outcomes, a flowchart may be your best bet. This is the format you should opt for when results aren't always predictable

# Summary of useful rules

For the procedure itself, make sure you cover the following:

- Scope and applicability. In other words, describe the purpose of the process, its limits, and how it's used. Include standards, regulatory requirements, roles and responsibilities, and inputs and outputs.
- Methodology and procedures. The meat of the issue -- list all the steps with necessary details, including what equipment needed. Cover sequential procedures and decision factors. Address the "what ifs" and the possible interferences or safety considerations.
- Clarification of terminology. Identify acronyms, abbreviations, and all phrases that aren't in common parlance.
- Health and safety warnings. To be listed in its own section and alongside the steps where it is an issue. Do not gloss over this section.
- Equipment and supplies. Complete list of what is needed and when, where to find equipment, standards of equipment, etc.
- Cautions and interferences. Basically, a troubleshooting section. Cover what could go wrong, what to look out for, and what may interfere with the final, ideal product.
- Give each of these topics their own section (usually denoted by numbers or letters) to keep your SOP from being wordy and confusing and to allow for easy reference.
- This is by no means an exhaustive list; this is just the tip of the procedural iceberg. Your organization may specify other aspects that require attention.

# … more useful rules

- **Make your writing concise and easy to read.** Odds are your audience isn't choosing to read this for fun. You want to keep it short and clear -- otherwise their attention will stray or they'll find the document formidable and hard to grasp. In general, keep your sentences as short as possible.

  **Here's a bad example**: Make sure that you clean out all of the dust from the air shafts before you begin using them.

  **Here's a good example: Vacuum all dust from air shafts before use.**

- **Break up large chunks of text with diagrams and flowcharts.** If you have a step or two that are particularly intimidating, make it easy on your readers with some sort of chart or diagram. It makes it easier to read and gives the mind a brief hiatus from trying to make sense of it all.
- In general, don't use "you." It should be implied. Speak in the active voice and start your sentences with command verbs.

# Upload to FAIRDOMHub and share

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## New SOP

Upload

You can register a SOP by either directly uploading a file, or registering a URL to either another page or remote file. Please test the URL before submitting.

Local file | Remote URL

**File to upload** *

Choose File No file chosen

**Title** *

Example of published SOP "Enzymatic in vitro test for the quantitative determination of glycogen"

**Description**

Enzymatic in vitro test for the quantitative determination of glycogen.
Glycogen is a branched glucose polymer, in α-1,4 linkage, with branching via α-1,6 linkage. It is stored primarily in the liver, kidney and muscle cells, and forms an energy reserve that can be quickly mobilized to meet a sudden need for glucose. In this assay glycogen content is determined by using amyloglucosidase treatment and a glucose assay .

Experimental assays and Modelling analyses

The following Experimental assays and Modelling analyses are associated with this SOP:

SOPs collection for metabolomics data ✖

You may select an existing editable Experimental assay or Modelling analysis to associate with this SOP.

Select Experimental assay or Modelling analysis ...