

# Writing the materials and methods section of a scientific paper

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## The materials and methods section should provide clear information on:

- Details of experimental procedures (what was done, and how).
- Details of quantities, times, and other relevant parameters and experimental conditions.
- Details of equipment.
- Details of materials.

## The order and specific subsections can vary depending on the journal style.

### Typically these can be divided into:

- Materials
- Instrumentation
- Experimental procedures
- Statistics

Methods should be clear to allow experiments to be reproduced, but concise.

Written as past tense, passive form.

## Materials and methods

**Materials.** Culture media were obtained from Life Technologies (Gaithersburg, MD). Okadaic acid was purchased from Alexis Company (Läufelfingen, Switzerland). Antibodies to MEK1/2 and phosphorylated MAPK were purchased from New England Biolabs (Beverly, MA).

**Induction of cell death.** Cell death was induced as described previously [15]. Briefly, cell death was induced by adding okadaic acid (0-300 nM, Alexis Co.) after washing slice cultures in serum-free medium.

**Light and electron microscopy.** Cultures were fixed in 2.5% glutaraldehyde and 1% formaldehyde, treated with 1% OsO<sub>4</sub> in 0.1 M phosphate buffer, pH 7.4, dehydrated in a graded series of ethanol and propylene oxide, and flat-embedded in epoxy resin (Durcupan ACM, Fluka, Neu-Ulm, Germany). Semi-thin sections were stained with toluidine blue, and ultra-thin sections were stained with 1% uranyl acetate for 20 min and 1% lead citrate for 2 min.

**Statistics.** For statistical analysis, 2-tailed Student's *t* test was used to assess the significance of mean differences. Differences were considered significant at a *P* value of 0.05 or less.

Materials described first\*  
Suppliers/location given

\*Depending on the journal, materials can be described under each relevant subsection

Clear subheadings  
Refs used to save space

Enough information to reproduce the experiment

Statistical test parameters provided