

# Congratulations



**Leaflet for pregnant and breastfeeding women at**  
The Department of Molecular Biology and Genetics (MBG)

Aarhus University

February 2014

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The Danish Working Environment Authority = Arbejdstilsynet

The Clinic of Occupational Medicine = Arbejdsmedicinsk klinik

The Danish Health and Medicines Authority = Sundhedsstyrelsen

The Danish National Institute of Radiation Hygiene = Statens Institut for Strålehygiejne

The Danish Working Environment Authority's guidelines for pregnant and breastfeeding women = Arbejdstilsynets vejledning for gravide og ammende

Guideline from the Danish Working Environment Authority = AT-vejledning

The on-line information system of occupational medicine = Arbejdsmedicinens online informationssystem

Translation from Danish of the leaflet "Informationshæfte til gravide og ammende ved Institut for Molekylærbiologi og Genetik (MBG), Aarhus Universitet, Revideret udgave 12.2.2014" by LH.

## **Pregnancy policy for MBG**

The overall objective of the pregnancy policy at MBG is to ensure a good and safe working environment for the pregnant staff and students so that they can continue to work safely throughout pregnancy until maternity leave.

Work must be organised to eliminate any risks, if possible – either by substitution with other compounds, substances, physical aids, personal protection or exemption from certain risky work. If it is not possible to change the working processes or procedures, the pregnant women must be transferred to other types of work.

To ensure a safe workplace, the pregnant women, her colleagues and the management must enter into a binding collaboration that respects the rules of pregnant women working in the laboratory.

The pregnant women should:

- inform about her pregnancy at an early stage
- be given a workplace in a non-radioactive laboratory
- be given the chance not to work with compounds specially risky for pregnant women
- not be asked to lift heavy parcels, equipment etc., nor work at awkward or repetitive working positions
- have the possibility of starting a new project (students)
- be able to get assigned to other types of work if uncomfortable with a particular work situation

Reference: The Danish Working Environment Authority's guidelines for pregnant and breastfeeding women, A.1. 8 January 2009: [www.at.dk/sw5813.asp](http://www.at.dk/sw5813.asp)

## **Risk assessment – Clinic of Occupational Medicine**

The workplace risk assessment for pregnant women must be prepared by the employer in cooperation with the working environment organisation. The risk assessment in relation to pregnancy can, however, be complicated. If the employer – alone or with the help of a safety advisor – is not able to make the required risk assessment, the pregnant woman's own doctor may refer her to a clinic of occupational medicine for help with the risk assessment.

The occupational medical examination takes place in the form of a 30-60 min. interview with a physician. Based on this interview, the physician makes a detailed evaluation of the pregnant woman's daily work and work environment, so that any risk to the fetus or the pregnancy is disclosed. The clinic of occupational medicine looks at the physical risk factors (lifting, pulling, pushing, prolonged walking or standing work, extreme temperatures, radiation, etc.), chemical and infectious exposure.

After the medical interview, the physician might require further information, which is often the case when the pregnant woman is exposed to chemical exposure. Once the risks to the pregnant woman's work have been evaluated, the physician assesses whether the pregnant woman can continue working as usual, or whether changes should be made to the working conditions of the pregnant woman.

References: The on-line information system of occupational medicine: [www.armoni.dk](http://www.armoni.dk)

Reference: The Danish Working Environment Authority's guidelines for pregnant and breastfeeding women: [www.at.dk/sw5813.asp](http://www.at.dk/sw5813.asp)

## Rules for pregnant women working with radioactivity

Women of reproductive age must be instructed by the supervisor/employer that special rules apply during pregnancy. Pregnant women must be made aware of the Danish Health and Medicines Authority's booklet "Guidance on Radiation Protection when working with open radioactive sources" ("Vejledning om Strålebeskyttelse ved arbejde med åbne radioaktive kilder"), The Danish National Institute of Radiation Hygiene, 2005.

[www.sst.dk/publ/Publ2005/SIS/Vejl\\_aabne\\_kilder/Vejl\\_aabne\\_kilder.pdf](http://www.sst.dk/publ/Publ2005/SIS/Vejl_aabne_kilder/Vejl_aabne_kilder.pdf)

Women must inform their employer about their pregnancy as early as possible.

After the announcement of pregnancy, the responsible leader and the pregnant woman must assess the amount of radiation the unborn child could be exposed to during pregnancy. If necessary, the Clinic of Occupational Medicine could be involved in the risk assessment. If these parties are uncertain, a written workplace evaluation ("APV") could be submitted to the Danish National Institute of Radiation Hygiene for a final evaluation.

### Ionizing radiation

- Pregnant women must not be subjected to a dose of more than 1 mSv during pregnancy

The Danish National Institute of Radiation Hygiene considers this dose to be acceptable if the pregnant woman does not at one time work with activity quantities exceeding the following limits:

### Maximum dose of isotope accepted

- $^{32}\text{P}$  5MBq (135  $\mu\text{Ci}$ )
- $^3\text{H}$ ,  $^{14}\text{C}$ ,  $^{35}\text{S}$  and  $^{33}\text{P}$  50MBq (1,35 mCi)
- Pregnant women must not make iodine with  $^{125}\text{I}$ .
- Pregnant women should not take radioactive stock solutions

If these rules cannot be met, the pregnant women must be given other types of work. In case of accident, the pregnant woman's work situation must be reassessed.

### Breastfeeding

If a woman is breastfeeding when working with radioactive material, special attention must be paid. However, if she works with activity amounts less than the limits in an S1 license, there is usually no reason why the woman should be moved to another job.

These rules are in accordance with The Danish Health and Medicines Authority's no. 823 of 31 Oct. 1997.

The Danish Working Environment Authority's guidelines for pregnant and breastfeeding women: [www.at.dk/sw5813.asp](http://www.at.dk/sw5813.asp)

## Chemical influence

Always read the workplace instructions for each substance you are handling.

The general safety precautions must be observed, and the concentrations of the substance being studied should be considered.

Hazardous substances should be substituted by other, less dangerous, if possible.

Guidelines for the assessment of whether exposure in the working environment poses a risk of an adverse effect on pregnancy can be found in the guidelines from the Danish Working Environment Authority, A1.8 (Jan., 2002, revised version of January, 2009).

Not all substances have adequate risk phrases (R) and hazard (H) statements. If in doubt, please ask the safety representative or the Clinic of Occupational Medicine.

During pregnancy and breastfeeding, you must pay particular attention to those marked with the following risk phrases:

<b>Old R phrases</b>	<b>New H statement</b>
R 39: Risk of serious damage to health	H 370
R 40: May have carcinogenic effects	H 351
R 45: May cause cancer	H 350
R 46: May cause genetic defects	H 340
R 48: Serious damage to health by prolonged exposure	H 372
R 49: May cause cancer by inhalation	H 350
R 60: May damage fertility	H 360
R 61: May damage the unborn child	H 360
R 62: May damage fertility	H 361
R 63: Suspected of damaging the unborn child	H 361
R 64: May cause harm to the baby during breastfeeding	Does not exist
R 68: Possible risk of irreversible damage to health	H 371

Always check whether you are working with substances labelled with these risk phrases or hazard statements.

You can get the administrator of Kiros to give you an updated list of substances relevant to your group, or you can even search under "advanced search", for example, for substances with the above R/H-phrases/statements.

Kiros: [www.kiros.dk](http://www.kiros.dk)

**Please note:**

**Imidazole**

According to Sigma-Aldrich MSDS, the imidazole free base can damage the unborn child (H360D).

This problem can be avoided if you use imidazole hydrochloride instead, as this is not labelled with the same level of hazard.

See also the department's website: staff pages on work with imidazole:

<http://mbg.medarbejdere.au.dk/arbejdsmiljoe/godkendelser-og-instrukser/arbejde-med-imidazol/>

## **Ergonomic influence**

### **Physical impacts**

Pregnant women should be aware of the negative impacts that may arise during work:

#### **Vibrations**

Pregnant women should not expose themselves to powerful whole-body vibrations. Especially centrifuges, but also other laboratory devices – such as large, fast-paced shaking tables/shaking incubators – could pose a risk.

#### **Lift**

Pregnant women should avoid lifting heavy loads, as they may pose a risk to the unborn child and premature birth. In general, a pregnant woman should make sure that the lift is done under optimal conditions:

- that the lift takes place at the centre front of the body
- that the lift takes place at mid-thigh and elbow height
- that the load is designed for handling
- that carrying when lifting is avoided
- that the footing is stable

#### **Noise and ultrasound**

The hearing of the unborn baby is developed in the latter half of pregnancy, and it may be damaged by strong low-frequency noise (below 500 Hz). Noise will be reduced through the skin, abdominal wall, uterus and amniotic fluid to the fetal ears. This attenuation is very small at low frequencies. Pregnant women should therefore not be exposed to loud noise containing low frequency (below 500 Hz).

Ultrasound, i.e. frequencies above 18,000 Hz, is considered to pose a risk to both mother and child. By an ultrasound in air, the fetus is protected by the mother's body, no matter how powerful the ultrasound is. The ultrasound will pass into the human tissue when the body is in contact with solid objects or liquids that oscillate at ultrasonic frequencies. This means that the pregnant woman usually should not make a sonication.

#### **Extreme heating**

Working temperatures above 35°C can be harmful to fetal development. This may be due to overheating of the fetal tissue or failure of the blood supply to the fetus. High working temperatures can occur, for example, in greenhouses in the summer.

The Danish Working Environment Authority's guidelines for pregnant and breastfeeding women: [www.at.dk/sw5813.asp](http://www.at.dk/sw5813.asp)



## Biological influence

A study of 2 June 2004 showed that none of the biological agents (bacteria, viruses and cells) used at the Department of Molecular Biology and Genetics are considered hazardous to pregnant women.

The current rules for laboratory classification must always be followed, and the supervisor/employer must give new staff/students a thorough instruction before they start working in the laboratory.

More information about this topic:

"Bekendtgørelse om biologiske agenser og arbejdsmiljø" ("Act of biological agents and the working environment") from the Danish Working Environment Authority:

<http://arbejdstilsynet.dk/da/regler/bekendtgorelser/b/biologiske-agenser-57.aspx>

### Avoid working with test animals

Test animals may pose a risk to the fetus as they can have a protozoan, *Toxoplasma gondii*, which can cause toxoplasmosis (toxoplasmosis) in humans. It is recommended that pregnant women get their physician to take a blood test to detect the antibodies against toxoplasmosis. The animals can also be tested. In the presence of the antibody, you may continue to work as before. If it is not present, the pregnant woman should be moved to another type of job.

### Avoid working with poultry/birds

Avoid working with birds/poultry because of the risk of ornithosis (psittacosis). Both toxoplasmosis and ornithosis can damage the unborn child.

### Samples from patients

Be careful when working with blood and tissue samples; all samples from patients are considered potentially infectious and should be treated accordingly. A vaccination against hepatitis before starting work (and before becoming pregnant) is recommended.

### Working with cytostatics

Work with cytotoxic drugs can only be considered to be safe for pregnant women if the work is done in such a way that there is no risk that the drugs are absorbed by the pregnant woman.

The highest risk is found when preparing cytotoxic agents, cleaning preparation rooms and when installing and injecting/infusing cytostatics. These tasks should not normally be performed by pregnant women.

The Danish Working Environment Authority's guidelines for work with cytostatics: D.2.12, December 2004.

## Nano particles in the working environment

During the past 10 years, there has been an increase in the development and application of particulate nanomaterials. At the same time, research has given rise to suspicion of possible health risks related to exposure to nanoparticles in the workplace.

Industry's Working Environment Council ("Industriens Branchearbejdsmiljøråd") has prepared a booklet on nanoparticles in the workplace. The guidelines in this booklet **are not approved** The Danish Working Environment Authority but express the partners' preliminary recommendations.

Nanoparticles in the working environment: [www.i-bar.dk](http://www.i-bar.dk) and [www.bar-u-f.dk](http://www.bar-u-f.dk)

### Safety

There are no regulations ensuring an unambiguous specification of labelling and classification of products with nanoparticles.

Based on the available knowledge about the health effects of airborne nanoparticles, it is recommended to minimise exposure to airborne particles as much as possible, and to follow the precautionary principle:

### Safety precautions

- use cupboard, glove boxes, or laminar flow benches with an HEPA filter
- avoid bringing dust into the room
- use personal protective equipment
- dispose of waste as being potentially harmful

## References

(in Danish)

Arbejdsmedicinens online informationssystem, [www.armoni.dk](http://www.armoni.dk)

Arbejds miljø i det offentlige og finanssektoren, [www.arbejdsmiljoweb.dk](http://www.arbejdsmiljoweb.dk)

Arbejdstilsynet, [www.at.dk](http://www.at.dk)

Arbejdstilsynets bekendtgørelse om biologiske agenser og arbejdsmiljø  
<http://arbejdstilsynet.dk/da/regler/bekendtgorelser/b/biologiske-agenser-57.aspx>

Arbejdstilsynets vejledning for gravide og ammende A1.8, [www.at.dk/sw5813.asp](http://www.at.dk/sw5813.asp)

Arbejdstilsynets vejledning om arbejde med cytostatika D.2.12, december 2004

Gravid med job – portalen, [www.gravidmedjob.dk](http://www.gravidmedjob.dk)

Industriens Branchearbejdsmiljøråd, [www.i-bar.dk](http://www.i-bar.dk)

Materialer fra Industriens Branchearbejdsmiljøråd, [www.i-bar.dk](http://www.i-bar.dk) og [www.bar-u-f.dk](http://www.bar-u-f.dk)

MBGs kemikalierregistreringssystem, [www.kiros.dk](http://www.kiros.dk)

Nanopartikler i arbejdsmiljøet, [www.i-bar.dk](http://www.i-bar.dk) og [www.bar-u-f.dk](http://www.bar-u-f.dk)

NanoSafer, <http://nanosafer.i-bar.dk/>

Retsinformation, [www.retsinformation.dk](http://www.retsinformation.dk)

Statens Institut for Strålehygiejne, [www.sis.dk](http://www.sis.dk)

Sundhedsstyrelsen, [www.sst.dk](http://www.sst.dk)

Sundhedsstyrelsens bekendtgørelse om dosisgrænser for ioniserende stråling  
[www.sst.dk/Udgivelser/1997.aspx](http://www.sst.dk/Udgivelser/1997.aspx)

Sundhedsstyrelsens vejledning om strålebeskyttelse ved arbejde med åbne radioaktive kilder 2005, [www.sst.dk/publ/Publ2005/SIS/Vejl\\_aabne\\_kilder/Vejl\\_aabne\\_kilder.pdf](http://www.sst.dk/publ/Publ2005/SIS/Vejl_aabne_kilder/Vejl_aabne_kilder.pdf)

Videncenter for arbejdsmiljø, [www.arbejdsmiljoviden.dk](http://www.arbejdsmiljoviden.dk)