Risk Assessment of Laboratory Work with Chemicals (AFS 2011:19)1 (LBE)2 (MSBFS 2020:1)3

Department/Division: **Pure and Applied Biochemistry**

Operation/Activity: **Transformation into *Escherichia coli***

The operation includes handling of the following chemicals, mixtures and solutions

	Chemical/Mixture/Solution	CAS No.	Amount	Indications of danger
1	Purified Plasmid DNA	n/A	<50 µL	Not hazardous
2	Super optimal Broth medium	n/A	100 mL	Not hazardous
3	LB medium	n/A	100 mL	Not hazardous
4	Ampicillin	7177-48-2	10 g	May cause an allergic skin reaction., May cause allergy or asthma symptoms or breathing difficulties if inhaled.
4	Spectinomycin sulphate	64058-48-6	10 g	H302 Harmful if swallowed.

Identification of separate operations/activities that may involve the risk of accident or risk to health

	Operation/Activity	Risk/Problem	Consequence	Probability	Assessed risk	Risk-reducing measures
1	Weighing out Ampicillin	Breathing in dust particles	Mild	Possible	Hazardous	Wear protective clothing (safety glasses, lab coat, gloves).
2	Weighing out Spectinomycin	Breathing in dust particles	Mild	Possible	Hazardous	Wear protective clothing (safety glasses, lab coat, gloves).
3	Heat shock transformation	Possibility of burns from hot plate	Mild	Unlikely	Moderately hazardous	Apply caution. Heat resistant gloves can be used if necessary
4	Working with microorganisms	Contamination of environment	Mild	Possible	Moderately hazardous	Use safety glasses and wear a labcoat. Respect sterile working conditions and disinfect labware and surfaces before and after working with the microorganisms. Dispose of biowaste in designated place.

	Yes/No	Comments:
Rules for working alone has been observed	**Yes**	Supervisor needs to be present at all time, no individual work allowed
The possibility of evacuation and ventilation/water/power failure has been taken into account	**Yes**	Work will be stopped, flasks closed, staff will evacuate (long power outage) or wait until the power/water/ ventilation will be turned on
Environmental issues have been considered	**Yes**	Use a special container for collection of liquid and solid waste
Special risk assessment for pregnant staff has been done	**Yes**	

References:

Chemical Database KLARA

Date: 2026-06-17

Risk assessment made by:

Name: **Rytis Jurgaitis, iGEM Lund 2026**

Risk assessment checked by:

Name: **Hamsini Bharat, iGEM Lund 2026**

1) AFS 2011:19 Chemical Hazard in the Working Environment, provisions (amanded and reprinted in 2014:5; 2014:43; 2017:4; 2018:2; 2019:9)

2) Lag (2010:1011) om brandfarliga och explosiva varor (LBE)

3) MSBFS 2020:1 föreskrifter om hantering av brandfarlig gas och brandfarliga aerosoler

Last updated 2026-06-17