

Bacterial Transformation

No	Description/Details of Steps in Activity	Hazards	Possible Accident / Ill Health & Persons-at-Risk	Existing Risk Control (Mitigation)	Severity	Likelihood (Probability)	Risk Level	Additional Risk Control
1	Transferring aliquot of competent E.coli (dH5a or BL21 from Life Technologies) from -80 C to thaw on ice with an appropriate aliquot of plasmid (100ng) for 30min.	Skin contact with extremely cold materials; biological exposure	Cold burn injury; handling of bacteria outside of a Class I Biohazard Safety Cabinet risks generating aerosol particles which may be inhaled or ingested	Internal training is compulsory. Handle materials from -80 C using insulated / thermal gloves (or double layer latex gloves); wear proper PPE (safety goggles, lab coat, covered shoes); transfer samples in the biosafety cabinet; have disinfectant (e.g. 70 % ethanol) on hand.	2	1	1	
2	Adjust water bath to 42 degrees.	Electric shock, heat burns	Possibility of electric shock	wear proper PPE (gloves, lab coat, covered shoes)/	1	1	1	
3	Heatshock bacteria for 30 seconds exactly at 42degrees	Biological exposure, Electric shock, heat burns	Handling of bacteria outside of a Class I Biohazard Safety Cabinet risks generating aerosol particles which may be inhaled or ingested	Internal training is compulsory. Conduct routine bacteria work in a Class I Biohazard Safety Cabinet. Wear suitable PPE (e.g. lab coat, covered shoes, gloves); decontaminate equipment and/or small spills with 70% ethanol or DeCon90. Have training on how to manage biological spill with appropriate spill kit reagents (10% bleach or 70% Ethanol)	1	2	2	
5	Reviive bacteria at 37degrees with shaking for 1 hour.	Biological exposure to bacteria	Handling of bacteria outside of a Class I Biohazard Safety Cabinet risks generating aerosol particles which may be inhaled or ingested	Internal training is compulsory. Conduct routine bacteria work in a Class I Biohazard Safety Cabinet. Wear suitable PPE (e.g. lab coat, covered shoes, gloves); decontaminate equipment and/or small spills with 70% ethanol or DeCon90. Have training on how to manage biological spill with appropriate spill kit reagents (10% bleach or 70% Ethanol)	1	2	2	
5	Plate bacteria on LB+ appropriate antibiotic for selection, grow overnight in a small bacteria incubator.	Biological exposure to bacteria	Handling of bacteria outside of a Class I Biohazard Safety Cabinet risks generating aerosol particles which may be inhaled or ingested	Internal training is compulsory. Conduct routine bacteria work in a Class I Biohazard Safety Cabinet. Wear suitable PPE (e.g. lab coat, covered shoes, gloves); decontaminate equipment and/or small spills with 70% ethanol or DeCon90. Have training on how to manage biological spill with appropriate spill kit reagents (10% bleach or 70% Ethanol)	1	2	2	