

DNA Extraction from Gel and PCR Cleanup

| 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 | Adjust Water bath to 55 degrees to preheat. | Electric shock, heat shock | Possibility of electric shock | wear proper PPE (gloves, lab coat, covered shoes). Clean the bench with 70% ethanol after work for the day. | 1 | 1 | 1 | |
| 2 | Excise gel slices with DNA of the correct band into a 1.5mL centrifuge tube, add an appropriate volume of DNA binding buffer and melt the gel slice by incubation in the water bath at 55 degrees. Add a equal volume of DNA binding buffer to a completed pcr reation. | Biological exposure | Spillage of buffer and DNA | wear proper PPE (gloves, lab coat, covered shoes). Clean the bench with 70% ethanol after work for the day. | 1 | 1 | 1 | |
| 3 | Add the melted agarose in DNA binding buffer or pcr reaction and DNA binding buffer to DNA binding columns resting in 1.5mL tubes. Centrifuge the tube in a microcentrifuge and allow the DNA mixture to flow through. | Spillage, Biological exposure , injury due to improper usage of centrifuge and fingers | Injury due to imbalanced centrifuge and trapping of limbs or fingers | wear proper PPE (gloves, lab coat, covered shoes). Clean the bench with 70% ethanol after work for the day. Ensure that the centrifuge is balanced. | 1 | 1 | 1 | |
| 4 | Add wash buffer to wash through the columns and precipitate DNA. Centrifuge for 1 min, then pour out the remaining wash buffer in the tube. Centrifuge for a further 5 minutes to dry the column. | Spillage, Biological exposure , injury due to improper usage of centrifuge and fingers | Injury due to imbalanced centrifuge and trapping of limbs or fingers | wear proper PPE (gloves, lab coat, covered shoes). Clean the bench with 70% ethanol after work for the day. Ensure that the centrifuge is balanced. | 1 | 1 | 1 | |

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| 5 | Add 30-50ul of nuclease free water to the column, and incubate the columns in the 55 degrees water bath for 5 minutes. Spin down the DNA and quantify concentration using the Thermo Scientific nanodrop. | Spillage, Biological exposure , injury due to improper usage of centrifuge and fingers | Injury due to imbalanced centrifuge and trapping of limbs or fingers | wear proper PPE (gloves, lab coat, covered shoes). Clean the bench with 70% ethanol after work for the day. Ensure that the centrifuge is balanced. | 1 | 1 | 1 | |