

**General Risk Assessment****Form RA1**

(Refer to Notes for Guidance before completing this form)

<b>School Assessment No:</b>	R(D)SVS/The Roslin Institute
<b>Title of Activity:</b>	Insight to Roslin Research- Cows, Coughs and CRISPR
<b>Location(s), Date and Time of Work:</b>	Easter Bush Science Outreach Centre
<b>Brief Description of Work:</b>	
<p>A full-day (approx. 3 – 5* hour) hands-on workshop, which includes:</p> <ol style="list-style-type: none"> <li>1. Analysis plaque assays*</li> <li>2. Micropipetting practice</li> <li>3. Restriction enzyme digest of provided DNA samples*</li> <li>4. Gel loading and agarose gel electrophoresis of digested samples</li> <li>5. Visualisation of DNA samples on agarose gels</li> </ol> <p>In addition, participants will perform hands-on paper and discursive learning activities.</p> <p>The workshop will be led by a member of UoE staff and assistance will be provided from one or more student/researcher/clinician volunteers (could include undergraduate and postgraduate students, UoE staff and STEM Ambassadors).</p> <p>*5 hour workshop only- alternative paper based activities will be used in the shorter 3 hour workshop</p>	

**Hazard Identification:**

<b>Hazard(s)</b>	<b>Present Risk Evaluation</b> L/M/H	<b>Control Measures</b> (i.e. alternative work methods / mechanical aids / engineering controls etc.)	<b>Risk Evaluation after control</b> L/M/H
Slips and trips: Items left in walkways, liquid spills	L	No electrical wires or other items will be placed across walkways and any liquid spills will be cleaned up immediately.  Stools will be stacked or pushed under benches when not in use.	L

Electrical hazards: Lab equipment	L	All electrical equipment at Easter Bush Campus is PAT tested annually.  Participants will be supervised when setting up gel electrophoresis tanks and power will be turned on by demonstrators.	L
Plaque assay visualisation*	L	The plaque assays are pre-prepared and the virus is rendered inactive due to a fixation process.  Participants will wear gloves during handling.  Plaque assay plates will be sealed shut.	L
Chemical hazard: DNA digest setup*	L	Chemicals involved are not hazardous but could cause minor discomfort if swallowed or splashed into eyes. Participants will wear nitrile gloves throughout the practical work and eye protection when appropriate.	L
Chemical hazard: SYBR-Safe DNA stain in DMSO (dimethyl sulfoxide)	M	Only demonstrators will handle SYBR-Safe stock solution when preparing agarose gels, used at 1:20,000 dilution.  Participants and demonstrators will wear nitrile gloves at all times when handling SYBR Safe or agarose containing SYBR-Safe. Should stock SYBR Safe come into contact with gloves, gloves will be removed and replaced.  Gloves will be removed shortly after handling agarose gels.	L
Burns: Molten agarose	M	Demonstrators will use protective hand and eye wear when preparing molten agarose.  If participants are pouring their own agarose gels, the molten agarose will be decanted into	L

		plastic 50ml tubes containing a small volume (approx. 60ml), cooled to 60°C and will be fully supervised at all times.	
Gel running	L	TAE running buffer used at low concentration (0.25x). All spills wiped up immediately. Participants and demonstrators will wear nitrile gloves at all times.  Demonstrator to check lids on gel tanks and leads plugged in correctly before turning on power and starting gels.  Demonstrator to switch off and unplug power packs at end of gel run	L
Eye damage: Transilluminators	L	Participants will only use blue light transilluminators (a safer alternative to UV).  Participants and demonstrators will wear protective glasses and/or use filter screens on transilluminators to avoid exposure to bright blue light.  Only demonstrators will use the UV Gel doc to photograph gels – this has a safety feature to prevent the door opening when the UV transilluminator is turned on.	L

*\*Add more rows to table as necessary*

**Engineering Controls:** none required

Guarding		Extraction (LEV)		Interlocks		Enclosure	
Other relevant information (incl. testing frequency if appropriate):							

**Personal Protective Equipment (PPE):**

Eye / Face	x	Hand /Arm	x	Feet / Legs		Respiratory	
Body (clothing)	x	Hearing		Other (Specify)			

Specify the grade(s) of PPE to be worn: Reusable safety glasses and cotton labcoats, disposable nitrile gloves.

Specify when during the activity the item(s) of PPE must be worn: Lab coats at all times during workshops, gloves and safety glasses as required by practical activities.

**Non-disposable items of PPE must be inspected regularly and records retained for inspection**


**Persons at Risk:**

Academic staff	x	Technical staff	X	P'Grad students	x	U'Grad students	x
Maintenance staff		Office staff	x	Cleaning staff		Emergency personnel	
Contractors		Visitors	x	Others			

**Additional Information:** Identify any additional information relevant to the activity, including supervision, training requirements, special emergency procedures, requirement for health surveillance etc.

All demonstrators will receive training, including H&S aspects, before taking part in the workshops.  
 School groups taking part in the workshop will be accompanied by a teacher/other responsible adult at all times.

**Assessment carried out by:**

Name:	Jayne Quoiani	Date:	14 <sup>th</sup> November 2018
Signature:		Review Date:	