Work Activity:	Baylab Workshop – Forensic DNA		
Persons at Risk:	Employees, young persons, visitors, and others in the vicinity	**Risk Assessment ID:**	GP-RA-14
Assessor:	Lucy Haywood	**Issue Date:**	08/2025
Consulted With:	Emma Schierbaum	**Version Number:**	V 4.0
Approved By:	Yvonne McCann	**Review Date:**	08/2027

Applicable To:	Bayer employees who work in Baylab, school/college students, teachers and people accompanying the students as helpers
Notes:	Age Group for the Forensic DNA Workshop is 14 – 18 years of age

Comments and Relevant Documents:

This risk assessment covers the Baylab *Forensic DNA* Workshop. This risk assessment must be read in conjunction with GP-RA-09 *Baylab and Inspiration Space at Green Park*, which covers the general operation, storage, and maintenance in Baylab as well as the running of practical sessions and experiments for visiting student groups.

Note: All Baylab operations at 400 South Oak Way are under the control of the Baylab Manager.

Supervision of student groups: See GP-RA-09 *Baylab and Inspiration Space at Green Park.*

Spillages: All spillages to be cleaned up immediately and hazardous waste disposed of through our specialist contractor in accordance with the local waste disposal arrangements. Suitable spill kits are provided for all potential spillages.

Personal Protective Equipment: Lab coats are supplied and should be worn during sessions in the Lab. PPE required for the various experiments and procedures have been specified and will be provided to the student groups as required. This might include lab coats, suitable gloves, and safety eyewear. Normal uniform or day wear should be worn as Lab coats will be provided.

Fire and First Aid: The actions to be taken in all foreseeable emergencies and incidents are laid down in our Health and Safety Manual and are available to view on request. The Baylab Manager is a trained first aider.

General: Good laboratory practice must always be followed. Long hair must be safely tied back; ties should be removed or tucked into shirt/lab coat before entry into Baylab. For general advice on health and safety see Health and Safety Executive web site: *www.hse.gov.uk/*

Note: In addition to this Risk Assessment, Bayer employees and contractors must read and understand all relevant sections within the Bayer Health and Safety Manual. This can be accessed via the Health and Safety SharePoint site.

Please contact the Health and Safety Team based in Reading for any further advice or assistance – our email address is GB-CP-HS@bayer.com

Hazard	Persons at Risk	Risk rating (FF x SF)	Controls and Safe Working Procedures	Additional Controls Recommended
General use of equipment	Baylab Team, student groups and any other people in vicinity	2 x 3 = 6	Ensure sufficient working space around equipment for task Suitable selection of equipment and use restricted to intended purpose All equipment to be maintained in accordance with manufacturer's recommendations Ensure good housekeeping in area Faulty or defective equipment to be removed from use and repaired, recycled, or disposed of PAT testing regime in place and visual checks of all portable electrical equipment prior to use Use of any items of equipment to be demonstrated to students before operation Student use of equipment must be supervised at all times Access to Baylab area is restricted to authorised employees and visiting student groups only	Where new equipment is introduced, a full induction must be provided before use. Training for equipment use by supervising adults is the responsibility of the Baylab Manager.
Slips, trips, and falls	Operator, student groups and others in vicinity	2 x 3 = 6	Ensure good housekeeping in Baylab and Inspiration Space No running allowed in area Signage to be used if necessary to exclude others from designated areas Walkways must always be kept clear Wear suitable footwear Ensure adequate lighting of area All spillages to be cleared immediately Personal items such as bags and coats are stored in closed cupboards outside Baylab	Ensure good cable management to prevent cables becoming a tripping hazard.

Hazard	Persons at Risk	Risk rating (FF x SF)	Controls and Safe Working Procedures	Additional Controls Recommended
Use of glassware	Operator, student groups and others in vicinity	2 x 2 = 4	Students will be supervised to ensure glassware is handled correctly to prevent breakage Baylab Manager ensure all attendees are instructed not to touch any broken glass All breakages to be cleared up immediately and glass to be disposed of suitably	
Use of micropipettes	Operator, student groups and others in vicinity	2 x 2 = 4	Correct method of use explained at start and practice provided with safe liquids Supervision of process by Baylab Manager or responsible adult Students to report any spillages and spillages cleaned immediately	Note: potential risk from dripping or squirting of irritant biohazardous liquids.
Use of Pasteur pipettes	Operator, student groups and others in vicinity	2 x 2 = 4	Correct use of pipettes explained and demonstrated Practice provided with safe liquids Supervision of process by Baylab Manager or responsible adult Spillages to be reported and cleaned immediately Students to wear nitrile gloves, lab coats and eye protection if required by Baylab Manager Awareness of individual young people's suitability and capability	Note: potential risk of stabbing or potential dripping or squirting of irritant biohazardous liquids.

Hazard	Persons at Risk	Risk rating (FF x SF)	Controls and Safe Working Procedures	Additional Controls Recommended
Pouring the agarose gel	Operator, student groups and others in vicinity	2 x 2 = 4	Baylab Team member to retrieve liquid gels from water bath Students to wear suitable heat resistant gloves when handling the gels if they are hot (gels poured by Baylab staff so should be cool prior to being used by students) Supervision of process by Baylab Manager or responsible adult Gel to be poured slowly to avoid splashing or spillage Spillages to be cleaned immediately Awareness of individual young people's suitability and capability COSHH assessment in place for agarose	Note: gel is molten at 60°C presenting possible risk of burns but cools and sets rapidly.
Use of gel electrophoresis equipment	Operator, student groups and others in vicinity	2 x 2 = 4	Electrophoresis equipment to be set up by Baylab Team member Power pack not turned on until lids are securely in place. Equipment to be regularly PAT tested and inspected before use Supervision of process by Baylab Manager or responsible adult Students to wear nitrile gloves, lab coat and, when viewing the finished gels on transilluminator, eye protection MUST be worn	

Hazard	Persons at Risk	Risk rating (FF x SF)	Controls and Safe Working Procedures	Additional Controls Recommended
Use of Virkon	Operator, student groups and others in vicinity	2 x 3 = 6	Students advised of dangers and proper use of Virkon Relevant COSSH assessment in place Supervision of process by Baylab Manager or responsible adult All spillages to be reported and cleared up immediately Students to wear nitrile gloves, lab coat and eye protection as directed by Baylab Manager	Note: potential exposure to Virkon in solution only; there will be no contact with powdered form by students. Alternative cleansing solution of washing up liquid, water, and vinegar more likely to be used than Virkon.
Use of blue light transilluminator	Operator, student groups and others in vicinity	2 x 3 = 6	All participants to wear orange safety glasses or use orange visualizer cover when viewing gels Awareness of individual young people's capability and suitability Supervision of process by Baylab Manager or responsible adult Use of transilluminator to be supervised at all times PAT testing and visual checks before use	Note: safety glasses must be suitable for appropriate wavelength of light. This is done with blinds closed to give darkness to movement around the lab is minimized during this part of the experiment.
Use of mini centrifuge, centrifuge or picofuge	Operator, student groups and others in vicinity	2 x 2 = 4	Ensure loose clothing is secure and hair is tied back before use of centrifuge, mini centrifuge or picofuge PAT testing and visual checks of equipment before use Students advised of correct use of equipment before use Supervision of use by Baylab Manager Awareness of individual young people's capability and suitability	Mini centrifuges and picofuges are used on the lab desks. If large one is used it will be on front desk or central space for ease of use and accessibility.

Hazard	Persons at Risk	Risk rating (FF x SF)	Controls and Safe Working Procedures	Additional Controls Recommended
Storage and use of chemicals	Operator, student groups and others in vicinity	1 x 3 = 3	Students will work with appropriately diluted chemicals Chemicals to be stored in appropriate cabinets with appropriate segregation Minimum quantities of chemicals to be stored Chemicals to returned to storage when not in use COSHH assessments in place to cover use of all chemicals Suitable PPE to be worn, including lab coats, nitrile gloves and eye protection when determined by Baylab Manager All chemicals to be used under supervision of Baylab Manager or responsible adult Spillages to be notified immediately and cleaned up by the Baylab Team in accordance with local waste management protocols	Note: only small quantities of low molarity chemicals used. Waste chemicals to be disposed of in accordance with COSHH assessment and waste policy. Chemicals used in this workshop include Virkon, SYBR-Safe®.
Exposure to potential allergens	Operator, student groups and others in vicinity	2 x 3 = 6	Attending groups to inform in advance of any allergy, medical condition, or access requirement that may affect visit to Baylab Visiting school or group to obtain parental permission to attend Baylab The chemicals, substances and natural items used in this workshop are: • Virkon • Orange G • Enzyme – Taq polymerase	

Calculating the Risk Rating

Risks are assessed by rating the impact and the probability as low, medium or high, given the controls that are in place, as shown below. The numbers are multiplied together to give a score; the higher the score the greater the requirement to address that risk.

Risk is a combination of two factors:

- The likelihood that an adverse event will occur – the *Frequency Factor*
- The severity of the consequences of the adverse event – the *Severity Factor*

To make an assessment:

- Assess the frequency with which an accident may occur and take the numerical value from the table below for *Frequency Factor*. This assessment should be based on available data, such as reported accidents, or on knowledge and experience of the assessor.
- Assess the severity of injury the hazard could cause and take the numerical value from the table below for *Severity Factor*.
- Multiply the Frequency Factor by the Severity Factor to obtain the Risk Rating.
- Consult the Threshold Values given below to decide whether further controls are required.

Risk rating (RR) = Frequency Factor (FF) x Severity Factor (SF)

Frequency Factor	**Severity factor**
1 = Improbable Occurrence (<1/ year)	0 = No identified effect
2 = Possible Occurrence (Once/ year)	1 = Trivial Injury (no lost time)
3 = Occasional Occurrence (>2/ year)	2 = Minor Injury (≤ 7 days absence)
4 = Frequent Occurrence (>1/ quarter)	3 = Major Injury to One Person (RIDDOR reportable)
5 = Regular Occurrence (>1/ month)	5 = Major Injury to Several People or Fatality

Risk Assessment Conclusion:

The controls identified are accepted as being suitable and sufficient to allow this task to proceed.

Risk Level Rating

Threshold Values for Risk Ratings

0 – 8	**LOW LEVEL OF RISK**	**Acceptable risk within existing control measures**
9 – 11	**MODERATE LEVEL OF RISK**	**Put on hold and investigate further controls**
12 +	**HIGH RISK LEVEL OF RISK**	**Stop immediately and reassess process**

Record of Reviews and Controls Identified:

Date of review:	**13th December 2019**
Reviewed by (list all names Involved in review process):	**Lucy Haywood, Emma Schierbaum**
Extra Controls Identified:	**Corrective Action Taken and Completed Date:**
N/A	

Date of review:	**2nd June 2023**
Reviewed by (list all names Involved in review process):	**Lucy Haywood and Lisa Mullan**
Extra Controls Identified:	
Recommend discontinuation of Virkon due to risk to environment	

Date of review:	**27th August 2025**
Reviewed by (list all names Involved in review process):	**Lucy Haywood and Emma Schierbaum**
Extra Controls Identified:	
No changes required	

Register of Changes Made:

Description of Change:	Date of Change:	Made by:
Addition of Record of Reviews and Controls Identified table and addition of Register of Changes Made table in response to CHS Audit in June 2019	December 2019	J Harling
Removed reference to enzymes in substances list as not used in this workshop also noted that students do not handle the gels when they are hot as the Baylab staff prepare the gels	13 Dec 2019	L Haywood
Removed two chemicals as no longer used in this workshop	2nd June 2023	L Haywood
Included recommendation for use of natural equivalent to Virkon	2nd June 2023	L Haywood
2-yearly review – no changes or additions	27th August 2025	L Haywood

END