|  |  |  |
| --- | --- | --- |
| PI: |  | Image result for ghs pictogramhttps://tse1.mm.bing.net/th?&id=OIP.Mae346b32bfd518c515449ea7c0ba85c3o0&w=300&h=300&c=0&pid=1.9&rs=0&p=0&r=0 |
| Agent(s): | 7, 12-Dimethylbenz(A)anthracene (DMBA)  |
| Date SOP Created: |  |

*Instructions: Insert specific details pertaining to your research and delete irrelevant procedures; contact EH&S at 642-3073 or OLAC at 642-9232 as needed for assistance.*

|  |  |
| --- | --- |
| Hazard Information | 7, 12-Dimethylbenz(A)anthracene (DMBA) is highly carcinogenic in experimental animals. Large single and multiple doses produce tumors of the skin, breast, and stomach or leukemias regardless of route of administration. Skin of mice is particularly sensitive to low, topically applied doses. DMBA is a strong mutagen after metabolic activation. DMBA is absorbed through the skin and respiratory and intestinal tracts; and by intravenous and intraperitoneal injection, ingestion, and inhalation. It is carcinogenic and may irritate tissues and induce sensitivity. Avoid formation and breathing of dusts.Laboratory operations should be conducted in a fume hood posted “Carcinogen in Use – restricted area”. Engineering controls must be inspected in order to ensure efficient removal of hazard, and must have a visual indication of airflow, and alarms to indicate that airflow has fallen below acceptable standards. It may be appropriate to wear N95 particle respirators when handling stock powder – contact EH&S for advice. Avoid direct contact with skin and mucous membranes of the eyes, nose and mouth. No food or drink is allowed in the lab. Remove gloves and wash hands carefully before leaving. Please note, the highest risk of human exposure is via accidental parenteral injection; careful handling and disposal of sharps is required. Deposit used sharps directly into a rigid sharps container. **NEVER** recap needles. Hazards specific to your agent and route of administration:*List hazards specific to your agent and route of administration.* |
| Personal Protective Equipment (PPE) | when working with powder formNon-permeable static free gloves Long-sleeved lab coatSafety glasses or gogglesRespiratory protection may be required if aerosols may be generated and it is not possible to use containment equipment or other engineering controls.when working with DMBA in solutionNon-permeable gloves Long-sleeved lab coatSafety glasses or goggleswhen working with animals:Disposable gownGlovesSafety glasses or goggles or face shieldRespiratory protection may be required if aerosols may be generated and it is not possible to use containment equipment or other engineering controls.*Additional PPE specific to your research:* |
| Preparation | *List procedures used. Be specific about the physical form (solid, liquid, etc.) and locations for work (bench top, fume hood, biosafety cabinet), and personal protective equipment (PPE) to be worn when handling the material.* DMBA will be purchased/obtained from *(List provider)*. Package will be kept intact with shipping documentation and/or maintained in double containment with proper labeling, including PI name and contact information. Inspect the containers for damage during shipment. If damaged, contact the vendor immediately, and decontaminate and dispose of the shipment immediately.All handling of powder must be performed within a fume hood in *(List location)*. The fume hood will be posted as “Restricted Area -DMBA in Use - Carcinogen”. Place an absorbent pad inside of the fume hood during handling. Powder will be resuspended by pipetting, using a filter tip. All dilutions will be made by individuals wearing required PPE listed above, in the presence of another trained individual. If aliquoting samples, resuspension of the agent will be performed with extremely careful and slow titration, rinsing down the walls of the tube in the process avoiding foaming and aerosolization. Vials will be placed in an unbreakable, easily decontaminated, clean secondary storage container and transferred to storage at the appropriate temperature. DMBA stocks will be stored in a clearly marked secondary container labeled with the appropriate hazard symbol. Decontaminate all work surfaces and the exterior of all materials leaving the fume hood with 10% bleach before removing “Restricted Area” posting. Any waste generated should be double bagged and disposed of through EH&S as chemical waste after being brought back to the lab or collected in a yellow bag in a rigid container within NAF 120F, LSA 640, or Minor 599E *(choose location or list approved location)* for disposal as chemotherapy waste. *Other specific preparation steps (with location):*  |
| Transportation | DMBA will be carried in an easily decontaminated, leak-proof, secondary container labeled with a health hazard pictogram and PI name and contact information to *(list approved location)*. Avoid the use of glass containers. Handling will only be done by trained personnel. |
| Use | To ensure the safety of research staff, solutions of DMBA should be handled and prepared inside a chemical fume hood. Any visible contamination or spills should be cleaned with a 10% bleach solution and then washed with soap and water. Any wipes contaminated with DMBA must be disposed as hazardous waste.It is recommended that animal bedding should be made of material to minimize dust generation, such as corn cob bedding. Cage changes should take place in aChemical fume hood whenever possible. If one is not available, use an approved biosafety cabinet. A plastic liner which can simply be rolled up and disposed of should be placed under the bedding when cage changes cannot take place in a chemical fume hood.Smaller animals being housed during the course DMBA administration must be kept in filter-top microisolator cages to minimize the aerosolization of potentially contaminated bedding and excreta. Animals being administered DMBA will be housed in disposable caging for at least **one week** post- final administration. *Description of treatment procedures:* *Example: “On the day of experiments, in a chemical fume hood, treat mice with 20 mg of 7,12-dimethylbenz(a)anthracene (DMBA) intragastrically by gavage.”* |
| Disposal and DisinfectionIf unsure, contact EH&S at 642-3073 to determine disposal procedures. | * Decontaminate all work surfaces and equipment with 70% ethanol or 10% bleach.
* No waste streams containing DMBA shall be disposed of in sinks or general trash.
* All used sharps must be immediately placed into a rigid sharps container marked for hazardous chemicals. DO NOT recap needles. When 2/3 full, these containers should be disposed of as hazardous chemical waste through EH&S.
* All potentially contaminated lab debris should be collected in a yellow bag in a rigid container within NAF 120F, LSA 640, or Minor 599E *(choose location or list approved location)* for disposal as chemotherapy waste.
* Any waste liquid, if not absorbed, should be decanted from solid waste and disposed as chemical waste, see [*http://ehs.berkeley.edu/hazardous-materials*](http://ehs.berkeley.edu/hazardous-materials) for guidance.
* After treatment, disposable cages may be returned directly to standard ABSL1 housing but the cage card (obtain from OLAC) must be labeled to indicate the hazard type, agent, date of administration, and that OLAC should not change the cage for **one week** post-final injection. Complete the “OLAC Do Not Change” card with PI responsible cage change dates as applicable. After one week post final treatment, animals can be transferred to clean standard cages by the researcher within a functioning chemical fume hood or biosafety cabinet. Within the chemical fume hood or biosafety cabinet, used cages and bedding should be bagged within yellow bags and disposed of as trace chemotherapy waste. Water not contaminated with DMBA can be disposed of by normal OLAC procedures.
 |
| Spill Response and Emergency Procedures | *Disinfectant to be used:* Injury: If eye or skin contact occurs, wash affected areas with copious amounts of water for 15 minutes and IMMEDIATELY seek medical advice. If inhaled, move individual to fresh air and IMMEDIATELY seek medical advice, call 911. [Rescue breathing, CPR may be needed.] If swallowed, seek IMMEDIATE medical advice. Report the incident to your supervisor and the Occupational Health Clinic at 2-6891 for follow up. Medical attention during normal business hours: Tang Center Urgent Care (2-3188 or 3-7197); after hours go to urgent or emergency care: Alta Bates Hospital at 2450 Ashby (204-4444).If a spill should occur: Avoid generating dust. Small amounts of dilute chemical should be readily absorbed by a spill pillow, paper towels or granular absorbent and immediately placed in a fume hood. Any waste generated should be disposed of through EH&S as chemical waste, see disposal section. A large spill of concentrated chemical can create a potentially dangerous level of airborne vapor. Absorbent material should be placed over the spill if possible and the lab should be evacuated of all personnel if necessary. **For emergency clean up response or if there is an inhalation hazard, notify EH&S at 642-3073.** All spills must be notified to EH&S within 8 working hours. |
| Hazard Communication (signs, cage cards, etc.)  | All researchers handling this material must read and sign this document. When DMBA is in use, the doors will remain closed and the room should be posted to indicate “DMBA in Use-Authorized Personnel Only”. Any special entry requirements should be posted on the entrance(s) to the room. Only personnel whose presence is required should be permitted in the room while DMBA is in use. Postings will not be removed until all surfaces have been decontaminated with 10% bleach for 30 minutes.After one week of final treatment, animals should be transferred to clean cages by the researcher within a functioning biosafety cabinet and the “OLAC Do Not Change” card should be removed to indicate OLAC may resume care. Within the chemical fume hood or biosafety cabinet, used cages should be bagged within yellow waste bags and disposed as trace chemotherapy waste. EH&S and an OLAC veterinarian must review and date this SOP prior to starting this work within an animal facility. Obtain cage cards and hazard labels from OLAC. During injections this SOP must be posted in a plastic sleeve on the door of NAF 120F, LSA 640, Minor 599E *(choose location or list approved location)* to notify OLAC staff and other personnel.   |
| Unique Instructions | Before you start work: Review hazards of agents you are handling, complete required reading indicated below, sign and date below, rehearse all handling tasks with a placebo for practice, demonstrate worker proficiency to a supervisor and post signage. All high-risk tasks, such as work with stock material (i.e. making dilutions) should be conducted with two trained individuals present.Coordinate use of NAF 120F, LSA 640, Minor 599E *(choose location or list approved location)* with the OLAC Facility Manager. *Other unique procedures:* |
| Additional Information or References | Refer to applicable protocols and authorizations, e.g. the lab’s Biohazard Use Authorization, MAUP/eProtocol, SDS available at <http://ehs.berkeley.edu/hazardous-materials/safety-data-sheets-formerly-msds>, your lab’s chemical hygiene plan, or contact your supervisor or EH&S at 642-3073 for further guidance. Useful additional information:*Other required protocols or references:* |

|  |  |  |
| --- | --- | --- |
| **Print Name (last, first)** | **Signature** | **Date Plan Reviewed** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

PERSONNEL SIGNATURES

EH&S Review (Name/Date):­ 642-3073

OLAC Representative Review (Name/Date): 642-9232