Biological Toxin Reference Sheet

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BIOLOGICAL TOXIN REFERENCE SHEET
Domoic Acid (DA)

CHARACTERISTICS	
Natural Source	Marine diatom species of the genus *Pseudo-nitzschia*
Laboratory Source	Commercial
Toxicology	DA is a neurotoxin. Domoic acid is an excitatory amino acid containing the structure of glutamic acid and resembling kainic acid.

HEALTH HAZARDS	
Route of Entry	Ingestion of molluscan shellfish or crab with high levels of DA. Anchovies and sardines can also accumulate DA.
Signs and Symptoms	DA Shellfish Poisoning (DASP, or Amnesic Shellfish Poisoning) is characterized by vomiting, nausea, diarrhea and abdominal cramps within 24 hours of ingestion. Neurological symptoms may develop within 48 hours and include headache, dizziness, confusion, disorientation, permanent loss of short-term memory, motor weakness, seizures, profuse respiratory secretions, cardiac arrhythmias, coma and possibly death.
Toxicity Dose Data	The exact LD_{50} for humans is unknown; for mice the LD_{50} is 3.6 mg/kg (intraperitoneal)

MEDICAL PRECAUTIONS / TREATMENT	
Diagnosis	History of ingestion of bivalve mollusks followed by characteristic symptoms. The most accepted method for detecting DA in seafood is a reversed-phase HPLC with ultraviolet detection.
Prophylaxis	None available
Vaccines	None available
Treatment	Supportive; may require extended rehabilitation.
Emory Requirements	Report all exposures

CONTAINMENT REQUIREMENTS	
BSL-2/ABSL2	Containment Level 2 facilities, equipment, and operational practices. ***No open-bench work*** should be performed with DA. All work should be performed inside a Biosafety Cabinet. Use of needle-safe sharps is encouraged. Centrifuge rotors must have a lid, samples should be loaded/unloaded inside the BSC and the centrifuge should be decontaminated with appropriate disinfectant after use.

SUPPLEMENTAL REFERENCES	
BMBL: 5th Edition	http://www.cdc.gov/biosafety/publications/bmbl5/
IPCS INCHEM	http://www.inchem.org/documents/pims/animal/pim670.htm
CDC	http://www.cdc.gov/habs/illness-symptoms-marine.html

SPILL PROCEDURES	
Small	Notify others working in the lab. Rinse gloves with decontamination solution and don new gloves. Cover area of the spill with paper towels and apply decontamination solution, working from the perimeter towards the center. Exit and keep others from entering the laboratory. Allow 1 hour of contact time before entering the laboratory without respiratory protection. Cleanup and dispose of spill materials.
Large	Contact Emory's Biosafety Officer (404-727-8863), the EHSO Office (404-727-5922), or The Spill Response Team (404-727-2888).

EXPOSURE PROCEDURES		
Mucous membrane	Flush eyes, mouth or nose for 15 minutes at eyewash station.	
Other Exposure	Wash area with soap and water for 15 minutes.	
Reporting	Immediately report incident to supervisor, complete an employee incident report in PeopleSoft.	
Medical Follow-up	7am-4pm (OIM): EUH (404-686-7941) EUHM (404-686-7106) WW (404-728-6431)	After Hours: OIM NP On Call 404-686-5500 PIC# 50464
	Needle Stick (OIM): EUH (404-686-8587) EUHM (404-686-2352)	Yerkes: Maureen Thompson Office (404-727-8012) Cell (404-275-0963)

VIABILITY	
Decontamination	Not destroyed by heat. DA is water-soluble. Surfaces can be decontaminated with 10% freshly made bleach.
Inactivation	Heat stable

PERSONAL PROTECTIVE EQUIPMENT (PPE)	
Minimum PPE Requirements	At a minimum, personnel are required to don gloves, closed toed shoes, lab coat, and appropriate face/eye protection prior to working with DA. Additional PPE may be required depending on lab specific SOPs.
Additional Precautions	- Respiratory protection may be required if dust or aerosols may be generated. Fit testing and training is required annually per Emory's Respiratory Program: http://www.ehso.emory.edu/content-manuals/RespiratoryProtectionProgram.pdf -Wash and dry hands after handling DA

ADDITIONAL REQUIREMENTS	
Regulatory Requirements	Contact the Biosafety Office via biosafe@emory.edu