The United States Army Medical Research Institute of Chemical Defense (MRICD)

- A Brief Overview -

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Commander
Mission and Vision

Mission
Provide a strong medical defense against chemical warfare agents, toxins, and toxic industrial chemicals via research, training/education, and consultation.

Vision
Maintain and strengthen MRICD’s leadership as the Nation’s Center of Excellence for Medical Chemical Defense via innovative and comprehensive solutions to protect Warfighters and Civilians.
Recapitalization 2014

• Facts:
  • $280M
  • 526,000 sq. ft. total (75% ↑)
  • 50,000 sq. ft. animal holding (43% ↑)
  • 24 acres
  • 395 person capacity
Research
Products in Advanced Development

• Advanced Anticonvulsant System (AAS)
  • Midazolam – stops seizures, prevents brain damage

• Bioscavenger (BSCAV) [pre- and post event]
  • Transgenic Goat Milk Derived
  • Human Plasma Derived

• Improved Nerve Agent Treatment System (INATS)
  • MMB4 (AChE reactivator)
  • Licensure Expansion of Pyridostigmine Bromide beyond Soman

• Soman Nerve Agent Pretreatment, Pyridostigmine (SNAPP)
  • Post-Marketing Studies
Scopolamine

• Under investigation as an adjunct to medical countermeasures for nerve agent intoxication

• Stronger anticholinergic effects and more rapid CNS action than atropine

• FDA approved, used clinically for decades

• Scheduled for Milestone A transition in FY14

10 LD50 GB
+ Atr (0.5 mg/kg) + 2PAM (25 mg/kg) + Diazepam (0.72 mg/kg)

% 24 hr Survival

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<th>SCP (mg/kg)</th>
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* p<0.05 vs no SCP

(N)
Mechanism of OP Nerve Agent Toxicity

Nerve Agent Exposure:
- Percutaneous
- Inhalation

AChE is Inhibited Cholinergic Crisis

Central/Peripheral Nervous System
Bioscavenger Preserves AChE

Nerve Agent Exposure:
- Inhalation
- Percutaneous

With Bioscavenger (pre- or post-exposure)

AChE Not inhibited

Central/Peripheral Nervous System
Consultation – NA and SM exposure

- COCOM reachback
- Use of solid phase microextraction (SPME) fibers in field kits
- SM Adducts detected by MS
- NA fluoride regeneration detected by MS
- CDC confirms results

![Graph showing HD Plasma Concentration (nM) over days post exposure](image-url)
Medical Chemical Defense for the Nation

Federal Interagency Collaboration

Complementary programs contributing to the Nation’s defense against chemical threats

- CDC
- NIH
- DHS
- CIA/DIA

MRICD
Training and Education

- **MCBC** - Medical Management of Chemical and Biological Casualties
- **FCBC** - Field Management of Chemical and Biological Casualties
- **HM-CBRNE** - Hospital Management of Chemical, Biological, Radiological, Nuclear, and Explosive Incidents
- Off Site Courses
- Webinars
The Nation’s Center of Excellence for Medical Chemical Defense

RESEARCH

TRAINING & EDUCATION

CONSULTATION
COMMUNICATION

CONTINUITY

TEAMWORK