

4. CONCLUSIONS

- Since allegations for the illegal use of CW agents will be based primarily on the observation of injuries in supposed victims, unequivocal methods to verify such exposure in victims should be available in order to sustain the credibility of a Chemical Weapons Convention.
- Presently available methods for retrospective detection of exposure to CW agents are unsatisfactory since these lack specificity as well as sensitivity and are unsuitable when samples are taken at long time periods after the insult.
- Methods based on immunochemical or equivalent analyses of characteristic adducts of CW agents with DNA, proteins or other macromolecular constituents in the body should provide for the necessary specificity and sensitivity.
- Since the adducts of CW agents with macromolecules have life times of several days up to several months, the adducts can be detected over time periods which, based upon recent experience with CW incidents, are needed for retrospective detection of exposure.
- The feasibility of the immunochemical detection of exposure to CW agents has been demonstrated in the case of DNA adducts of sulfur mustard: a competitive ELISA based upon a monoclonal antibody raised against the major adduct allows the detection of exposure of human blood to $\geq 2 \mu\text{M}$ of the agent.
- The feasibility of immunofluorescent detection of local exposure to CW agents has been demonstrated after an in vitro challenge of human skin with non-blistering Ct-values of sulfur mustard vapor.
- In principle, immunochemical detection techniques of CW adducts in supposed victims, when developed, are simple to perform and can be applied under field conditions.
- Since the immunochemical detection methods can be quantified and used for dosimetry of exposure, these methods are also highly useful to monitor the internal dose of CW agents in persons involved in the destruction of stocks of these agents.