UNITED STATES MARINE CORPS
MARINE CORPS SYSTEM COMMAND
2200 LESTER STREET
QUANTICO, VIRGINIA 22134-5010

IN REPLY REFER TO:

5720
LAW
27 OCT 03

Mr. Edward Hammond, III
The Sunshine Project
101 West 6th Street, Suite 607
Austin, TX 78701

Re: Freedom of Information Act Request 084F-01, Referrals for Determination

Dear Mr. Hammond:

This responds to your Freedom of Information (FOIA) Request 084F-01. Department of Defense Instruction 5230.29 directs that prior to release of any information concerning chemical, biological, nuclear, or radiological information, the request for the information shall be referred to the Directorate for Freedom of Information and Security Review (DFOISR). Consequently, this office has referred the following documents listed in the subject request, along with release determination suggestions, to DFOISR:

1. Anti-Personnel Calmative Agents (94-085.pdf)
2. Anti-Personnel Chemical Immobilizers: Synthetic Opioids (94-086.pdf)
3. Biological Infared Sensor to Ascertain Human Targets and Determine Their Physical Characteristics, (5/11/98, P98-013.pdf)
4. Controlled Lachrymating Agents (97-010.pdf)
5. Demonstration of Chemical Immobilizers (94-084.pdf)

DFOISR will determine the appropriate release disposition of those four documents and respond to you directly. Please be advised that the official having cognizance over the subject matter of this portion of your request is:

(85)

1. Title: Antipersonnel Calmative Agents

27 April 1994

2. Type Effort. S & T

3. Proposed by: Edgewood Research, Development and Engineering Center

4. Capability Sought and Uses to Which it Could be Put: The objective is to develop non-lethal calmative agents for use in various military and law enforcement situations. A calmative agent can be defined as an antipersonnel chemical that leaves the victim awake and mobile but without the will or ability to meet military objectives or carry out criminal activity. Potential military applications include protection of U.S./UN forces in peacekeeping missions, crowd control, embassy protection and counterterrorism missions. Law enforcement application includes use by local, state and national law enforcement agencies in hostage and barricade situations. These materials will be particularly useful in situations where negotiation with adversaries/perpetrators is desirable.

5. Technical Description:

a. Technical Objectives: Conduct feasibility study to recommend candidate chemical(s) for use as calmative agents.

b. Technical Approach.

(1) Background. Dr. T. Stanley, MD, Prof. of Anesthesiology, Univ of Utah School of Medicine has reported (private communication) the powerful calmative effects on wildlife of an experimental drug originally made by a European drug company. This material belongs to a class generally referred to as seratonin antagonists or blockers. It is structurally related to the drug ketanserin, which has been used in veterinary medicine to treat malignant hyperthermia. Several years ago, in the course of some wildlife management studies, Dr. Stanley discovered the profound calming effect that this seratonin antagonist has on the wild elk. In their natural state these large, magnificent animals are unapproachable. When confined in a research pen they are extremely fractious and dangerous. However, under the influence of this drug, they remain alert and mobile but are very docile, so that they can be gently and easily approached, to the point of being petted or even mounted as a rider would sit astride a horse. If this same pattern holds true for other species and man and the proper safety ratio is shown, then this or a related chemical should be an ideal candidate calmative agent.

(2) The overall development of a non-lethal calmative agent, is a multi-phase, multi-year process including the following steps:

Phase 1 - Select and develop candidate material, including design and synthesis; characterize chemical and physical properties; demonstrate effectiveness and safety by preclinical toxicology tests.

Phase 2 - Expanded Preclinical Toxicological Tests, such as carcinogenicity, mutagenicity, teratogenicity, environmental fate, and subchronic effects, for Surgeon General, FDA and any required other agency approval.

Phase 3 - Develop delivery systems to include dissemination of candidate material for specific scenarios and hardware development.

Phase 4 - Clinical Trials for effectiveness and safety.

This proposal involves only a feasibility study to see of there is potential promise to proceed further with Phase 1.

(3) Technical Approach for Feasibility Study.

(a) Conduct literature search to correlate chemical structure of seratonin antagonists to seratonin receptor subtypes. Determine basic pharmacophore for various subtypes. Determine receptor subtype connected with both desired and undesired pharmacological effects.

(b) Identify and interact with expert(s) in academe, other government agency (OGA) or pharmaceutical laboratories to help identify or design compound(s) for desired effect.

(c) Obtain/synthesize target compound(s) and evaluate by in vitro or in vivo tests. In vitro tests will include receptor binding or other assays to indicate seratonin antagonist activity. In vivo tests will include toxicology screen to show desired activity in appropriate animal models.

6. Risk and Limitations. To our knowledge the profound calming effect of this experimental seratonin antagonist has only been shown in some isolated experiments. We are not aware of any published data to further eludicidate this phenomenon. Thus, we do not know if this desired effect will occur in other animals, especially in man, nor do we know of the potential side effects which may limit its usefulness. Thus, this proposed effort is of high risk, but with a potentially high payoff.

7/8. Project Plan/Cost by Fiscal Year.

Task	FY95	1Q, 2Q FY96
Literature Search Correlate Structure to Receptor Interaction Identify expert for collaborative study Identify pharmacophore	200	
Design, obtain/synthesize model compound Conduct in vitro test and in vivo screen		100

9. ERDEC POC: Parker Ferguson
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