STATE OF NEW YORK
DEPARTMENT OF HEALTH

Wadsworth Center The Governor Nelson A. Rockefeller Empire State Plaza P.O. Box 509 Albany, New York 12201-0509

Antonia C. Novello, M.D., M.P.H., Dr. P.H.
*Commissioner*

Dennis P. Whalen
*Executive Deputy Commissioner*

April 19, 2006

Edward H. Hammond, Director
The Sunshine Project
PO Box 41987
Austin, TX 78704

Enclosed are the IBC rosters and minutes as requested in your letter dated 3/15/06. The current review and approval procedures used by the Wadsworth Center's IBC and Biohazardous Agents Committee provide identification, review and oversight of the seven categories of experiments identified in NAS report *Biotechnology Research in an Age of Terrorism*.

David J. Hill, MEM, CIH, CBSP
Director of Biosafety, Wadsworth Center

Robert L. Glaser, Ph.D.
Chair, Wadsworth Center IBC for Recombinant DNA Research

Edward
Hammond
06-04-181

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**Wadsworth Center Institutional Biosafety Committee for Recombinant DNA Research - Roster as of 9/20/05**

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**Wadsworth Center Institutional Biosafety Committee for Recombinant DNA Research**

**Meeting Minutes for 12/16/05, 12:00PM, Executive Conference Room, Axelrod Institute**

1. Attendance
   Robert Glaser (Chair), David Hill, Laurie Duncan, David Shub, Carlos deNoronha, Keith Derbyshire. Absent members: Norma Tavakoli and Anne Willey.

2. Report of the Chair
   - Dr. Glaser introduced Dr. deNoronha as a new community committee member from Albany Medical College. Dr. deNoronha also provides expertise in virology.
   - Dr. Glaser reviewed the agenda, i.e., three new applications followed by a training program from David Hill.

3. Application review

**A. Dr. Jan Conn - Population genetic structure of Anopheles darlingi**

Discussion

- The committee determined that the recombinant DNA aspects of this project presented no health or safety risk and that the BSL-2 rating of Dr. Conn's laboratory was more than sufficient for the work proposed. The committee voted 5:0 in favor of approving the application.
- The issue of whether Dr. Conn has obtained the appropriate shipping permits for importing any live Anopheles into the US was raised. David Hill determined that Dr. Conn has the appropriate permits (12/19/05).

**B. Dr. April Burch - HSV-1 morphogenesis and the host-pathogen interface**

Discussion

- Dr. Shub raised the question of whether expression of the VPS and UL6 genes alone posed any health risk. Drs. deNoronha, Glaser, and Derbyshire, who were aware of Dr. Burch's work and had attended a recent seminar in which Dr. Burch discussed her work on these gene products indicated that there was no evidence that the products of these genes pose any health risk.
- The committee determined that the recombinant DNA aspects of this project presented no health or safety risk and that the BSL-2 rating of Dr. Burch's laboratory was appropriate for the work proposed. The committee voted 5:0 in favor of approving the application.
- David Hill did confirm with Dr. Burch after the meeting that the VPS and UL6 genes and/or gene products pose no health or safety risk (12/20/05).
- The question was raised whether Dr. Burch also works with live HSV-1 virus, and if so, whether she has obtained the appropriate approvals from the Biohazard Committee. David Hill confirmed that Dr. Burch has obtained the appropriate approvals for work with live non-recombinant virus.

**C. Dr. Pei-Yong Shi - Flavivirus replication, packaging, and antiviral drug discovery**

Discussion

- Dr. Shub raised the question of whether there were endogenous viruses in the cell lines being used that could compliment the Dengue Virus replicons and produce infectious viral

particles. Drs. Glaser, Derbyshire, and deNoronha indicated that the cell lines in question are widely used by the research community for the types of experiments being proposed by Dr. Shi, including for analysis of replicons of flaviviruses as well as other types of viruses, and that there was no evidence that the cell lines have endogenous viruses that could complement the Dengue replicons via recombination or trans-packaging.

- The issue was also raised whether there was any risk associated with the fact that Dr. Shi does research on both Dengue and West Nile virus, i.e., could the inadvertent introduction of a Dengue replicon into a cell lines already expressing the structural proteins of West Nile Virus result in the production of infectious viral particles. Dr. Glaser indicated that it is known that Dengue and West Nile are unable to trans-package each others genomes, so that this was not a risk.
- The committee determined that the recombinant DNA aspects of this project presented no health or safety risk and that the BSL-2 rating of Dr. Shi's laboratory was appropriate for the Dengue work proposed. The committee voted 5:0 in favor of approving the application with the caveat that David Hill confirm with Dr. Shi that the Dengue replicon would not be complemented by either endogenous viruses in the cell lines being used and that West Nile structural proteins are unable to trans-package Dengue replicon RNA's. Mr. Hill received such confirmation from Dr. Shi on 12/28/05.

4. Committee training
   - David Hill provided a training session to the committee using slides provided by on the OBA website on an "Overview of the Current NIH Guidelines for Research Involving Recombinant DNA Molecules".
   - The information on each slide was presented by Mr. Hill and discussed by the committee.
   - Three questions were raised that will be followed up by David Hill.
     1) What is the relationship between "restricted" agents and select agents?
     2) Should the IBC application form ask about the possibility of doing a genetic cross between two different transgenic animals, neither of which poses any health or safety risk, that could create a hybrid transgenic animal that does pose a health or safety risk?
     3) Is there any circumstance under which the IBC might consider requesting that the Biohazard Committee look at an application with respect to requesting or requiring a health surveillance program?
   - David Hill will investigate these questions and discussion them with the Committee chair. They will be raised at the next meeting.

# Wadsworth Center Institutional Biosaftey Committee for Recombinant DNA Research

## Meeting Minutes: 5/9/05

**1) Attendance:**

- The following members were present from the start of the meeting at 12:05pm: Robert Glaser (Chair), David Hill, Laurie Duncan, David Shub, and Norma Tavakoli. Non-member David Wentworth was also present as a technical expert.
- The following members were absent: Chuck Lowry, Anne Willey, and Keith Derbyshire.

**2) Report of the Chair:**

- Robert Glaser introduced Norma Tavakoli as a new committee member who will be replacing Harry Taber. He also indicated that he will be pursuing a replacement for Chuck Lowry.
- David Hill indicated that he will contact Harry Taber to request the addition of a virologist to the IBC.
- Robert Glaser reviewed the agenda which consisted of two rDNA application reviews.
    a. *Assembly, Replication, and Reverse Genetics of SARS Coronavirus* – submitted by Paul Masters.
    b. *A West Nile virus Germline Replicon System in Drosophila* – submitted by Robert Glaser.

**3) Application Review:**

A) *Assembly, Replication, and Reverse Genetics of SARS Coronavirus* (P. Masters)

1. Discussion:
    - David Wentworth began the discussion by providing his rationale for why Dr. Masters proposed research would not likely pose a significant risk to personnel or the environment. Specifically, he discussed the fact that the MHV spike protein/mouse receptor interaction is extremely specific and is even sensitive to allelic differences in the mouse receptor protein. The specificity is in both receptor binding and viral fusion with the host cell. Given the high level of specificity that MHV has for mouse cells, it is very unlikely that adding the SARS 3a gene to MHV would cause MHV to acquire specificity for human cells. The most likely consequence, if any, would be the disruption of binding to mouse cells without the creation of any new host tropism.
    - David Shub indicated that he was initially taken aback by the proposed research due to the uncertainties associated with the addition of this gene to MHV, which is known to be a highly virulent virus in mice. Although, he accepted David Wentworth's position that the likelyhood of altering the

host range is low, he advocated prudence in the absence of more information.

- The committee agreed that the likelihood of a recombinant MHV virus containing the SARS 3a protein acquiring the ability to infect humans cells is remote, but also recognized that the effect of SARS 3a on MHV host specificity is unknown and therefore warrants some caution.
- The committee decided that generating the initial recombinant MHV:SARS-3a virus under BSL-2(+) conditions (BSL-2 lab using BSL-3 containment practices) was a reasonable compromise between the unlikely possibility that the recombinant virus would acquire the ability to infect humans and the fact that the behavior of the recombinant virus is unknown. However, the laboratory must be inspected and approved by the Biosafety Officer prior to initiation of work to ensure that appropriate BSL-3 containment practices and procedures are in place.
- The committee also decided that initial experiments must be done with the recombinant MHV:SARS-3a virus under BSL-2(+) conditions to determine if the host range of the recombinant virus can be altered, i.e. testing the ability of the virus to infect a variety of human and primate cells lines. An appropriate experimental protocol should be developed by the Principal Investigator.

2. Vote by members: Approved at BSL-2(+) (unanimous).

B) *A West Nile virus (WNV) Germline Replicon System in Drosophila* (B. Glaser)

1. Discussion:
   - Robert Glaser began the discussion by clarifying that his proposed research consisted of two components: 1) Expression of WNV replicon in the *Drosophila* germline at BSL-2; 2) Expression of WNV replicon and a transgene expression the C, prM, and E structural genes of WNV in the *Drosophila* germline at BSL-3. Each was discussed separately.
     i. *Expression of WNV replicon in the Drosophila germline at BSL-2*: Dr. Glaser stated that there is no reason to expect that the proposed BSL-2 research activities will pose any human health or environmental risk because the replicon RNA cannot be packaged into an infectious particle in the absence of structural proteins. Furthermore, no flaviviruses are known to infect *Drosophila*, so there is not reason to expect packaging in trans by endogenous viruses know to infect flies. As a result, he believes that a BSL-2 level of safety is appropriate for this proposed research (See accompanying memo for additional details).
     ii. *Expression of WNV replicon and a transgene expression the C, prM, and E structural genes of WNV in the Drosophila germline at BSL-3*: Dr. Glaser indicated that the proposed research at BSL-3 (Insectary) would create flies that can produce pseudoinfectious particles that can spread the replicon from cell to cell within the

fly. Therefore, the pseudoinfectious particles produced in the fly would be capable of introducing the WNV replicon into human cells but would not be able to cause a spreading infection, i.e. disease. In theory, RNA recombination between the replicon mRNA and the C-prM-E mRNA could create recombinant genomes capable of creating fully infectious WNV particles, but RNA recombination has not been demonstrated for any virus in the flavivirus genera (WNV, Yellow Fever Virus, Dengue Fever Virus, Tick-borne Encephalitis Virus). Therefore, there is no reason to expect such recombination events would occur in flies. Nevertheless, flies will be tested by plaque assay for the presence of infectious particles.

2. Vote by members: Approved (unanimous). Note: Robert Glaser abstained from vote.

4) **Adjourn:** The meeting ended at 1:00pm. Future meetings will be scheduled as needed.

IBC-rDNA meeting agenda 10/27/04

1. Confirm presence of voting quorum of committee.

2. Review Applications
    2.1. RG-1 or below
        reviewed and presented individually by chair; discuss; approve as group
    2.2. RG-2, RG-3, Select Agent
        reviewed and presented individually by chair; discuss; approve individually

3. Other issues
    3.1. All survey applications completed. Safety of all current research in Wadsworth Center using recombinant DNA has been reviewed and approved. All future applications will be reviewed by process approved at last meeting.
    3.2. Proposal that ad hoc members added to any given meeting may NOT by voting members for quorum purposes, only for expertise or input.
    3.3. How might confidentiality requirements for work with Select Agents impact IBC-rDNA review?

# Wadsworth Center Institutional Biosaftey Committee for Recombinant DNA Research
## Meeting Minutes : 10-27-04

**Present:** Bob Glaser, David Hill, Laurie Duncan, Chuck Lowry, Harry Taber, Keith Derbyshire

**Absent:** David Shub, Ann Willey

Note: Appropriate number of members for quorum

1) **Introductions:**
- Chair provides copies of agenda and list of applications for review.

2) **Present Applications and Committee vote**

Applications are sorted by risk group and processed as follows:

1. Risk Group 1 (RG-1) or below: Each application is reviewed by Chair and Biosaftey Officer; then discussed and approved as a group by the committee.
2. Risk Group 2,3 (Rg-2, RG-3) or Select Agent: Each application is reviewed by Chair and Biosaftey Officer; every application presented individually by chair, and discussed/voted on by committee.
3. Application lists are *attached.*

3) **Additional Discussion/Issues:**

1. All Wadsworth Center survey applications are complete. Safety of all current research within the Wadsworth Center using recombinant DNA has been reviewed and approved. All future applications will be reviewed by the process approved at 10/13/04 meeting (refer to 10/13/04 minutes).

2. Proposal: Any ad hoc members included at any given meeting may NOT be voting members for quorum purposes, only for expertise input.
   Discussion: If individual is not on the original Committee Roster (refer to 10/13/04 minutes) than they can not be considered a voting member.
   Vote by members: Pass (unanimous)

3. How might confidentiality requirements for work with Select Agents impact IBC-rDNA review?
   - Question raised by David Wentworth on Select Agent Application. He noted to chair that he signed a document stating that information regarding his select agent work should not be disclosed to the public.
   - However, IBC Committee acknowledges that meeting minutes may be available to the public by FOIL.
   - Biosaftey Officer Comments:
     - The Office of Inspector General has said not to release select agent information to the public.

- If there are additional state-specific laws, then need to compare restrictions and resolve on a state level

- Discussion:
  - Discrimination can occur at the time of FOIL, when Legal Affairs may be brought in to decide which pieces of an application can be released and what should be redacted by blanking out sections of the application
  - There should be no changes to the current review process
  - When minutes are shared with NIH, will enclose all applications including the Select Agent applications, although these applications may be mailed separately for confidentiality purposes
  - It may be prudent to bring Legal Affairs in to this discussion prior to a FOIL request being received.

**Not Associated with Humans / RG-1 Applications**

| | |
|---|---|
| Derbyshire, V. | Intron dynamics and DNA/protein interaction (3; archaea, T4, E. coli) |
| Herron, B. | Analysis of mouse model of dilated cardiomyopathy |
| Jaeger, J. | Bovine Viral Diarrhea virus |
| Mannella, C. | Structure and permeability of the mitochondrial outer membrane (2; S. cerevisiae and neurospora) |
| Rieder, C. | Function of spindle components (3) |
| Ryan, T. | Human gamma glutamyl hydrolase |
| Schneider, E. | Role of transport proteins in anticancer drug resistance |
| Symula, D. | Characterization of NPC2<br>Expression profiling in mouse ES cells |

**Discussion:**

- No health risk issues in these applications
- Work with transgenic animals (although RG-1) may need to be considered their own category of RG-1
    - Currently application reviews did not separate transgenic mouse work from that of other mice.

**Vote by Members**: All applications approved unanimously.

## RG-2 Applications

| PI | Project | RG-2 Agent | Relevant Health Issue | Discussion | Approval Status |
|---|---|---|---|---|---|
| Jaeger, J. | Hepatitis C virus RdRp | Hepatitis C virus | clones | Both agents are RG-2. Only looking at clones for two genes. Not infectious material. | Approved |
| | Human rhinovirus RdRp | Human rhinovirus | clones | Same as above | |
| McDonough, K. | Yersinia pathogenesis | Yersinia pestis (attenuated) Yersinia pseudotuberculosis | clones into E. coli or attenuated Y. pestis | * | Approved IBC rDNA<br><br>Refer to Biosaftey Officer |
| | * Using only attenuated Yersinia species, therefore not a select agent. Work being performed in an appropriate BSL-2 lab. Cloned genes are being introduced back in to the attenuated Yersinia, but will not convert bacteria to virulent phenotype. Since cloned genes have unknown function, a concern was raised re-introducing these genes might create a virulent phenotype via gene dosage effects. Bacteriologists, Dr.'s Derbyshire and Taber reasoned that this concern was negligible and did not raise additional health concerns. | | | | |
| Shi, P-Y. | Flavivirus replication, packaging and antiviral drug discovery | YFV(17D); Dengue | infectious clones with reporter genes | Dengue is a RG-2 agent. Infectious full-length clones used. Infecting cell lines. Appropriate BSL-2 laboratory. | Approved |
| | | YFV(17D); Dengue | virus replicons with reporter genes | Viral replicons only. No rDNA work can change the virulence or tropism of the replicon beyond appropriate BSL-2 level. | Approved |

| | | | | | |
|---|---|---|---|---|---|
| Wentworth, D. | Coronavirus replication pathogenesis and reverse genetics | Coronaviruses from mouse, bovine, human, porcine, avian, feline, canine Also adenovirus, baculovirus and vaccinia virus as vectors | - exchange of gene fragments from heterologous CoV's<br>- infectious viruses may be recovered as part of work<br>- is aware of concerns about altered tropisms and will notify biohazard committee before doing such experiments | * | Approved |
| | * CoV gene fragments used in reverse genetics. Exchange of gene fragments from heterologus viruses. Mixing only RG-2 agents will not intrinsically change health risk. However, host range may be altered depending on which viruses exchange gene fragments (ie. Human-tropic viruses). This work is <u>not</u> being performed, and if work *were* to be considered, PI would seek IBC and Biohazard approval. PI also notes in application that the mixing of these viruses has thus far made them more attenuated. | | | | |
| | Influenza species specificity and replication | Influenza virus<br>Adenovirus<br>Baculovirus | clones; <2/3 genome; attenuated adenovirus expression system | * | Approved |
| | * Influenza and Adenovirus are RG-2 agents. Working with influenza clones and expressing them in Adenovirus vectors. Adenovirus is genetically attenuated and can only propagate infectious virus when grown in special cell lines that provide complimenting genes. | | | | |
| | Identification and characterization of virus receptors | Adenovirus<br>Baculovirus | attenuated adenovirus expression system | PCR-based work to identify receptors. Expression of clones in Adeno and Baculovirus systems. No health risks. | Approved |

| | | | | | |
|---|---|---|---|---|---|
| | Exp. and purification of SARS C protein | SARS-CoV | clone; <2/3 genome | Only C protein of SARS virus used. No viral work, only proteins. No health risk. | Approved |
| Wentworth, D. | SARS-CoV diagnostics, probes and antigens | SARS-CoV (RG-3)<br>Adenovirus (RG-2)<br>Baculovirus (RG-2) | clones; <2/3 genome attenuated adenovirus exp | Expression of genes in attenuated Adeno and Baculovirus systems. Appropriate BSL-2 level used. No SARS virus, only clones. Source of genes is from SARS virus from BSL-3 lab. | Approved |

## Select Agent Applications

| PI | Project | Select Agent | Relevant Health Issue | Discussion | Approval Status |
|---|---|---|---|---|---|
| Jaeger, J. | Foot and mouth disease virus RdRp | Foot and mouth disease virus (USDA select) | clone of RdRp | Subclone work only. Foot and Mouth Disease virus is a USDA select agent. Committee noted that there are special guidelines for the shipping of these clones. No health risk. | Approved |
| Wentworth, D. | Influenza pathogenesis, replication and species specificity | highly pathogenic influenza viruses (RG-3 and select) also baculovirus and attenuated adenovirus | - clones; <2/3 genome - any complementation experiments that could create infectious virus will follow appropriate guidelines and have biohazard approval | Highly pathogenic influenza is a RG-3 and Select Agent. PI has appropriate FBI approvals. Subclones of influenza cloned in to Adeno. and Baculoviral vectors to study effects of influenza structural genes. PI noted that co-infection of multiple negative sense RNAs could result in an infectious virus. This work is not being performed, and if work *were* to be considered, PI would seek IBC and Biohazard approval. Safety Director confirmed that the source of materials were DNA clones. | Approved<br><br>Refer to Biosaftey Director for verification of the source of materials. |

IBC-rDNA meeting agenda 10/13/04

1. Committee structure:
   8 members: chair, biosafety officer, director of safety, 2 community members, 3 other Wadsworth members

2. Proposal to define quorum required for votes
   5 members including chair, biosafety officer, 1 community member, 2 other Wadsworth
   → vote on quorum rule

3. Applications from Wadsworth survey
   A. proposal on how to review:
      1) RG-1 or below
         reviewed by chair and Biosafety officer; discuss and approve as group
      2) RG-2, RG-3, select agent
         reviewed by chair and Biosafety officer
         presented individually by chair and discussed
         committee vote on each
      → vote on proposal
   B. present applications and committee vote on each

4. Future Applications
   A. all applications will require committee approval
   B. low risk applications that only require committee notification before beginning work will be accumulated until next meeting at which they will be discussed and approved
   C. applications that require pre-approval before the research can start will necessitate calling a meetings on an "as needed" bases, but no less than once per year.
   → vote on protocol for future approvals

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# Wadsworth Center Institutional Biosaftey Committee for Recombinant DNA Research
## Meeting Minutes : 10-13-04

**Present:** Bob Glaser, David Hill, Laurie Duncan, Chuck Lowry, Harry Taber, Keith Derbyshire, Ann Willey
**Absent:** David Shub

1) **Introductions:**
   - Chair provides copies of agenda and list of applications for review.

2) **Overview of Committee Structure:**
   - 8 Committee Members: Chair (Robert Glaser), Biosaftey Officer (David Hill), Director of Safety (Laurie Duncan), 2 Community Members (Chuck Lowry, David Shub), and 3 Wadsworth Members (Harry Taber, Keith Derbyshire, Ann Willey).
   - Wadsworth Center Institutional Biosaftey Committee Roster *attached*

3) **Proposal to Define Quorum Required For Votes:**
   - 5 members for quorum: Chair, Biosaftey Officer, 1 Community member, and 2 Wadsworth Members.
   - Discussion: *Ad hoc* Community and Wadsworth Center members can be added as necessary. *Ad hoc* invitees cannot be voting member for quorum purposes, but they are welcome for scientific expertise (Refer to 10/27/04 minutes). In the future, will consider adding a virologist to committee. In addition, a virologist may sit on committee meetings as a consultant.
     - Vote by members: Pass (unanimous)

4) **Applications from Wadsworth survey:**

A) Proposal of application review process

- All Wadsworth Center PI's were asked to complete a 'Project Approval Form" for this committee's review.
- A copy of the IBC Project Approval Form is *attached*

Applications are sorted by risk group and processed as follows:

1. Risk Group 1 (RG-1) or below: Each application is reviewed by Chair and Biosaftey Officer; then discussed and approved as a group by the committee
2. Risk Group 2,3 (Rg-2, RG-3) or Select Agent: Each application is reviewed by Chair and Biosaftey Officer; every application presented individually by chair, and discussed/voted on by committee
   - Since IBC Committee reviews applications regarding recombinant DNA only, protocols solely involving the manipulation of infectious agents without rDNA will be referred to the Biohazard Committee.
3. Risk Group Definitions as described in 'NIH Guidelines for Research Involving Recombinant DNA Molecules (2002 revision)' *attached*

4. Discussion: The same application may appear under multiple risk groups depending upon if more than one risk group was represented in the application
5. Vote by members: Pass (unanimous)

B) Present Applications and Committee vote

1. Discussion: If a committee member is listed as the PI on application under review, committee member can remain present for discussion but can not vote regarding that application. Member response documented as 'Vote Abstained'.
2. Applications are listed within each risk group, in alphabetical order by PI's last name. Information was presented with the application title, agent, relevant health issue, discussion (if any), and approval status.
3. Application lists are *attached*
4. Chair noted that all minutes of the meeting can be requested by FOIL.

**5) Future Application Approval Process:**

- All applications will require committee approval
- Low risk applications that only require committee notification before work: Chair and Biosaftey Officer will review; applications will be accumulated until the next formal committee meeting at which they will be discussed and approved
- Higher risk applications that require pre-approval before the research can begin will necessitate calling a committee meeting on an "as needed" basis, but no less than once per year
- Discussion:
    1. There are tentatively 12 additional applications pending submission for committee review
    2. Committee meeting likely to be held by then end of the Fall 2004 semester to complete pending applications.
    3. David Hill has developed a list of existing applications that are still pending within each division; list will be distributed to each Division Director.
    4. Any new PI will be required to complete the survey upon beginning work. PI will document what agents will be used, how work will be performed, how materials handled/stored. The committee will review Risk Group status in the application and conduct review.
    5. Current Wadsworth Center PI's will update their information yearly in programs reviews and on new grant applications.
    6. Biosaftey Officer will design an educational program for all PI's. Program will inform PI's of approval process, and that notification is required when any changes to their applications occurs.
- Vote by members: Pass (unanimous)

**Wadsworth Center**
**New York State Department of Health**
**Institutional Biosafety Committee for Recombinant DNA**
**Project approval form**

**PI NAME:** _____

**PROJECT** (cloned sequences from one organism per project)

Title: _____

Description of project: _____

_____

Funding sources that support work: _____

SEQUENCES BEING CLONED

Source organism: _____

Category: viral; bacterial; fungal; parasitic; murine; human; other: _____

Risk Group[1]: not assoc. with humans; RG1; RG2; RG3; RG4; select agent

Describe the nature of the sequences being cloned: _____

_____

Do sequences encode protein/RNA that could pose a health risk if expressed? Y / N

If yes, describe source of risk: _____

_____

If sequences of viral origin, do they represent >2/3 or <2/3 of viral genome? (circle)

If sequences of viral origin, can expression of clone produce an infection? Y / N

If sequences of viral origin, is clone a replicon? Y / N

VECTOR SEQUENCES

Source organism(s)[2]: _____

Category: viral; bacterial; fungal; parasitic; murine; human; other: _____

Risk Group[1]: not assoc. with humans; RG1; RG2; RG3; RG4; select agent

Do vector sequences encode protein/RNA that could pose a health risk if expressed? Y / N

If yes, describe source of risk: _____

_____

If vector sequences of viral origin, do they represent >2/3 or <2/3 of viral genome? (circle)

If vector sequences of viral origin, can expression of clone produce an infection? Y / N

If vector sequences of viral origin, is clone a replicon? Y / N

HOST #1[3]

Host organism or source of cells: _____

Category: bacteria; eukaryotic microorganism; fungi; higher eukaryote; other: _____

Risk Group[1]: not assoc. with humans; RG1; RG2; RG3; RG4; select agent

Does transgenic host pose health risk due to the expression of cloned sequences or interaction between the cloned sequences and other genes or gene products present in host? Y / N

If yes, describe source of risk: _____

_____

HOST #2

Host organism or source of cells: _____

Category: bacteria; eukaryotic microorganism; fungi; higher eukaryote; other: _____

Risk Group[1]: not assoc. with humans; RG1; RG2; RG3; RG4; select agent

Does transgenic host pose health risk due to the expression of cloned sequences or interaction between the cloned sequences and other genes or gene products present in host? Y / N

If yes, describe source of risk: _____

_____

LAB CONTAINMENT

Lab containment used for creating recombinant DNA molecules: BSL-2; BSL-3

Lab containment used for creating transgenic host: BSL-2; BSL-3

Lab containment used for analysis of transgenic host or expressed products: BSL-2; BSL-3

If infectious agent is involved, has Biohazard Committee given approval? Y / N

PERSONNEL TRAINING

Do lab members receive training on lab safety techniques appropriate for level of containment? Y / N

Do lab members receive training on lab safety techniques specific to organisms used in research? Y / N

Any other information that might be relevant to assessing potential health or environmental risks associated with the above described experiments:

_____

_____

_____

The PI agrees that the experiments described above are/will be conducted in strict accordance with the most current NIH Guidelines[4]:

Signature of PI: _____ Date: _____

[1] Risk groups can be found at http://www4.od.nih.gov/oba/RAC/guidelines_02/APPENDIX_B.htm

[2] List all organisms that apply.

[3] List separate hosts separately. If more than two, use additional forms.

[4] The NIH Guidelines for Research Involving Recombinant DNA Molecules can be found at http://www4.od.nih.gov/oba/rac/guidelines/guidelines.html

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(for OBA/IBC use)

The Wadsworth Center OBA/IBC has determined that the above described experiments that involve the use of recombinant DNA molecules are being performed under appropriate biosafety level containment.

OBA/IBC Signature: _____ Date: _____

**Risk group definitions as defined in:**

**NIH GUIDELINES FOR RESEARCH INVOLVING RECOMBINANT DNA MOLECULES (2002 revision)**

Agents are classified into four Risk Groups (RGs) according to their relative pathogenicity for healthy adult humans by the following criteria:

(1) **Risk Group 1 (RG1)** agents are not associated with disease in healthy adult humans.

(2) **(2) Risk Group 2 (RG2)** agents are associated with human disease which is rarely serious and for which preventive or therapeutic interventions are *often* available.

(3) **(3) Risk Group 3 (RG3)** agents are associated with serious or lethal human disease for which preventive or therapeutic interventions *may be* available. (4) Risk Group 4 (RG4) agents are likely to cause serious or lethal human disease for which preventive or therapeutic interventions are *not usually* available.

## Not Associated with Humans / RG-1 Applications

| | |
|---|---|
| Agrawal, R. | Dynamic behavior of ribosome ligands during translation |
| Belfort, M. | Intron mobility (10 proposals covering 1 phage, 12 bacteria, 1 yeast, 1 neurospora) |
| Bowser, S. | Phylogeny and cytoskeletal proteins of foraminifera |
| Caggana, M. | Controls for mutation detection |
| Curcio, J. | Regulation of retrotransposition in S. cerevisiae |
| | Functional analysis of human APOBEC genes in yeast |
| Derbyshire, K. | Genetic analysis of transposition |
| Dias, J. | Human protein sequences |
| | Rat protein sequences |
| Drohat, A. | Structure and mechanism of DNA base excision repair enzymes |
| Flaherty, L. | Mouse models of developmental defects |
| Glaser, R. | Genes involved in development of Drosophila |
| Gray, T. | Poxvirus/host interactions of the D4R virulence factor |
| Hanes, S. | Importance of bicoid in Drosophila melanogaster embryos |
| Hanes, S. | Understanding role of ESS1 in transcription |
| Hernandez, G. | Flexibility versus thermal stability in rubredoxin proteins |
| Khodjakov, A. | Functional properties of centrosomes in somatic cells |
| Koonce, M. | Molecular characterization of a cytoplasmic dynein |
| LeMaster, D. | Protein NMR structure and dynamics via isotopic labeling |
| Li, H. | Interaction between CbpA and its human receptor pIgR (4 proposals covering human, mouse, 1 bacteria) |
| Limberger, R. | Molecular analysis of treponemal motility genes |
| Maley, F. | Bacterial and human deoxycytidylate deaminase |
| | Targetted proteolysis of thymidylate synthase |
| Martin, D. | Phosphorylation of pyridoxal |
| | Structure and function of glutamate decarboxylase |
| | Glutamate decarboxylase genotype analysis |
| | Biosensors incorporating GABAc ion chemical receptors |
| Morse, R. | Transcriptional regulation in yeast |
| Nag, D. | Trinucleotide repeat instability in yeast |
| Pata, J. | DinB homolog lession-bypass DNA polymerase |
| Pentecost, B. | Gene regulation in breast cancer and other tissues |
| Sell, S. | Role of mGSTA3 gene in aflatoxin-induced hepatocarcinogenesis |
| Spink, D. | Carcinogenicity of B-ring unsaturated estrogens |
| Spivack, S. | Gene expression in lung epithelium |
| Tavakoli, N. | Development of controls for diagnostic assays (2) |
| Trimble, R. | Glycoprotein biosynthesis in yeast |
| Van Roey, P. | Glycosidases |
| Winslow, G. | Immunity to ehrlichia and tuberculosis |
| Walsh, A. | Cloning of human genes/partial genes/cDNA or genomic DNA of unknown function |

**Discussion:**

- Applications in this category do not require containment above BSL-1.
- The Chair noted that all Wadsworth Center laboratories are at least BSL-2.

**Vote by members**: All applications approved unanimously. Glaser, R. and Derbyshire, K. abstained votes for their applications.

## RG-2 Applications

| PI | Project | RG-2 Agent | Relevant Health Issue | Discussion | Approval Status |
|---|---|---|---|---|---|
| Anders, D. | Cytomegalovirus replication and latency | CMV | clones; < 2/3 genome | Clones only | Approved |
| | Genetics approach to cytomegalovirus replication and latency | CMV | full genome clone reconstitute infectious virus | Reconstitutes infectious virus, works in a BSL-2 lab, that is appropriate for RG-2 agents. | Approved |
| Bernard, K. | Influenza virus sublcones | Influenza virus | clones; < 2/3 genome | Human tissue cell clone lines | Approved |
| Chaturvedi, S. | Superoxide dismutase of Cryptococcus neoformans | *Cryptococcus neoformans* | used as host organism | Subclones, and used as host organism | Approved |
| | SOD1p in Cryptococcus neoform | | | Same as above | Approved |
| | Secretion in Cryptococcus neofor | | | Same as above | Approved |
| Chaturvedi, V. | *Candida albicans* class II transpc elements | *Candida albicans* | use as host organism | Functions at an appropriate BSL-2 safety level | Approved |
| | *Cryptococcus neoformans* MAT-alpha locus and genes | *Cryptococcus neoformans* | use as host organism | Same as above | Approved |
| | *Cryptococcus neoformans* oxidative killing mechanisms | | | Same as above | Approved |
| Cirino, N. | Real-time PCR positive control synthesis | vaccinia | in vitro PCR DNA only | PCR products only and exempt from review. IBC Committee will review all apts. anyway | Approved |
| | Real-time PCR positive control synthesis | Staphylococcus aureus | | Same as above | Approved |
| Dean, A. | Development of controls for diagnostic assays | Influenza A & B | cloned segments of genome | Small gene segments only | Approved |
| Derbyshire, K. | Conjugation in Mycobacteria (2) | M. smegmatis; M. bovis BCG | use as host organism | Used as host organism | Approved Derbyshire abstained |
| Ding, X. | Molecular toxicology of xenobiotic-metabolizing enzymes (4) | Adenovirus | replication defective | Adenovirus – defective virus only. | Approved |
| Hanes, S. | Understanding role of ESS1 in transcription | *Cryptococcus neoformans* *Candida albicans* | use as host organisms | Question if testing is being performed in a biosaftey cabinet | Approved IBC rDNA Refer to Biosaftey Officer |

| | | | | | |
|---|---|---|---|---|---|
| Keithly, J. | Babesia PCR | Babesia microti | ribosomal RNA clone | Safety Director confirmed that the source of materials are oocytes and not from clinical specimens | Approved IBC rDNA<br><br>Refer to Safety Director to determine source of material |
| | Malaria PCR | Plasmodium sps (5) | ribosomal RNA clones | Same as above | Approved |
| | Function of pyruvate:NADP ferredoxin oxidoreductase from Crypotsporidium parvum | Cryptosporidium parvum | cloned segments of genome | Subclone portions of genome only.<br>Safety Director confirmed that the source of material s are oocytes and not from clinical specimens | Approved IBC rDNA<br><br>Refer to Safety Director to determine source of material |
| Li, H. | Interaction of CbpA and human pIgR | Streptococcal pneumoniae | cloned CbpA | During infection, the role of this gene produce in toxicity is unknown. BSL-2 practices are appropriate safety measures. | Approved |
| | Superantigen-immunoreceptor interactions | Macoplasma arthritidis | subcloned mitogen only | During infection, the role of this gene produce in arthritis is unknown. BSL-2 practices are appropriate safety measures. | Approved |
| Limberger, R. | Molecular analysis of treponemal motility genes | Treponema denticola | use as host organism | Used as host | Approved |
| Madison-Antenucci | RNA editing protein REAP-1 | Trypanosoma brucei | use as host organism | Used as host | Approved |
| Masters, P. | Genetics of coronavirus | MHV | used as vector; >2/3 genome | Full infectious virus, works in appropriate BSL-2 lab | Approved |
| | Old clones | VSV (RG-2)<br>Chandipura (RG-2) | cloned segments of genome<br>cloned segments of genome | Same as above | Approved |
| Messer, A. | Intrabody therapy for neurodegenerative dieseases (4) | toxic gene products adenovirus<br>rabies virus | huntingtun; α-synuclien replication defective surface glycoprotein gene only | Clones encoding toxic products – only a health issue if expressed in neural brain cells in humans | Approved |
| Ramsingh, A. | T cell immunity to HIV using | coxsackie virus (RG- | infectious CVB4/HIV | Infectious virus, only | Approved |

| | | | | | |
|---|---|---|---|---|---|
| | recombinant enteroviruses | 2)<br>HIV (RG-3) | virus made<br>HIV-gag gene only | gag gene product of HIV. BSL-2 appropriate. | |
| Tavakoli, N. | Development of controls for diagnostic assays (6) | human metapneumovirus<br>resp. syncyt. virus<br>enterovirus<br>Herpes - 1<br>Herpes - 2<br>varicella zoster virus | cloned segments of genome | Only cloned segments, so exempt. Work performed in BSL-2 facility | Approved |
| Van Roey, P. | Glycosidases of Streptococcus pneumoniae | Streptococcus pneumoniae | cloned segments of genome | Cloned segments only | Approved |

**Discussion:**

- All Wadsworth Laboratories are at least BSL-2.
- Periodic inspection of all labs by Biosaftey Officer ensure appropriate BSL practices and compliance.

## RG-3 Applications

| PI | Project | RG-3 Agent | Relevant Health Issue | Discussion | Approval Status |
|---|---|---|---|---|---|
| Belfort, M. | Intron dynamics | M. tuberculosis | intein clones only | Work with cloned inteins in an appropriate BSL-2 lab. Original M. tb genomic DNA is kept in a BSL-3 lab. Never had actually organism in laboratory | Approved |
| Bernard, K. | West Nile Virus replicon | West Nile Virus | replicon only | Viral replicons do not create any novel health risk beyond WNV RG-3. Work is all performed in a BSL-3 facility. Testing of heterologous packaging for replicon all performed in BSL-3 lab | Approved |
| | West Nile Virus sublcones | West Nile Virus | cloned segments of genome only | Same as above | Approved |
| | Powassan virus subclones | Powassan virus | cloned segments of genome only | Same as above | Approved |
| Burger, H. | Complete HIV RNA sequences-determinants of attenuation | HIV | infectious tissue; complete HIV genome clones | Clone full-length virus in BSL-3 lab, when extract full length DNA clone(s) work in a BSL-2 lab | Approved |
| Derbyshire, K. | Conjugation in Mycobacteria | M. tuberculosis | cloned segments of genome only | Have no organism in lab - cloned segment obtained from another lab | Approved Derbyshire abstained |
| Li, H. | Structure and function of flavivirus replicase | West Nile Virus | cloned segments of genome only | Cloned segments only. No real health risk. | Approved |

| | | | | | |
|---|---|---|---|---|---|
| Masters, P. | Genetics of Coronavirus (2) | MHV (RG-2)<br>BCoV (RG-2)<br>TGEV (RG-2)<br>IBV (RG-2)<br>FIPV (RG-2)<br>Baculo (RG-2)<br>SFV (RG-3)<br>Sinbis (RG-3) | used as vector >2/3 of genome<br>cloned segments of genome<br>cloned segments of genome<br>cloned segments of genome<br>cloned segments of genome<br>used as vector >2/3 of genome<br>used as vector <2/3 of genome<br>used as vector <2/3 of genome | Full length MHV (RG-2). Subclones of SFV and Sinbis (not infectious). | Approved |
| | Genetics of SARS | SARS (RG-3)<br>MHV (RG-2)<br>baculo (RG-2) | used as vector >2/3 of genome<br>used as vector >2/3 of genome<br>used as vector >2/3 of genome<br>SARS done in P3 facility<br>exp's to transfer SARS structural to MHV not planned | All SARs work performed in a BSL-3 lab. No intention to create hybrid SARS/MHV. | Approved |
| Pata, J. | HIV-1 reverse transcriptase | HIV | clone of reverse transcriptase only | No infectious virus, clones only | Approved |
| Ramsingh, A. | T cell immunity to HIV using recombinant enteroviruses | coxsackie virus (RG-2)<br>HIV (RG-3) | infectious CVB4/HIV virus made<br>HIV-gag gene only | HIV (RG-3). HIV-gag gene only. No increased health risk. | Approved |
| Tavakoli, N. | Development of controls for diagnostic assays | SARS | cloned segments of genome only | Segments/clones of SARS only- no health risk - clones provided from another lab | Approved |
| Weiser, B. | A study of the natural histor HIV infection in women | HIV | cloned segments of genome only | Cloned HIV segments only - no health risk | Approved |
| | HIV compartmental in women | | | Same as above | Approved |

**Discussion:** All Wadsworth laboratories are at least BSL-2. When working with full-length clones, or infectious agents –all work is performed in appropriate BSL-3 facility.

## Select Agent Applications

| PI | Project | Select Agent | Relevant Health Issue | Discussion | Approval Status |
|---|---|---|---|---|---|
| Bernard, K. | Eastern Equine Encephalitis virus subclones | EEE | cloned segments of genome only | Cloning is of no health risk - subclones of Infectious virus are stored In a locked room, In a locked freezer, with limited access by Individuals registered with the FBI | Approved |
| Chaturvedi, V. | *Coccidioides immitis* and *Coccidioides posadasii* mating related genes | *Coccidioides posadasii* *Coccidioides immitis* | use as host organism | Use as host organism. All work conducted in a BSL-3 lab. | Approved |
| Cirino, N. | Real-time PCR positive control synthesis (4) | F. tularensis Ricinus B. anthracis Variola | in vitro PCR DNA only | PCR products only. Exempt from review. No health risk | Approved |
| Ryan, T. | Analysis of B. anthracis toxins | B. anthracis | PA, LF and EF clones not toxic individually; combined expression not planned | Individual clones are not toxic – clones given by Harvard University – only toxic if all 3 proteins are expressed together – no plans to express together | Approved |

**Discussion**: Even if working only with clones of select agents – still listed here for review purposed.

STATE OF NEW YORK
DEPARTMENT OF HEALTH

Wadsworth Center The Governor Nelson A. Rockefeller Empire State Plaza P.O. Box 509 Albany, New York 12201-0509

Antonia C. Novello, M.D., M.P.H.
*Commissioner*

Dennis P. Whalen
*Executive Deputy Commissioner*

September 20, 2005

Allan, C. Shipp, Ph.D.
Director of Outreach
NIH Office of Biotechnology Activities
6705 Rockledge Drive
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re: IBC Annual Report - 2005 - Wadsworth Center, New York State Department of Health

Dr. Shipp,

Enclosed is the current roster and associated CV's for the Wadsworth Center's Institutional Biosafety Committee for Recombinant DNA Research (IBC-rDNA). Since our last annual report on 8/6/04, the Wadsworth Center has reviewed all current research and service programs that involve the use of recombinant DNA molecules irregardless of the source of funding for the work. All NIH funded programs were included. Principal investigators and/or program supervisors had to apply for IBC-rDNA approval for each research project or service program performed under their direction that involves the use of recombinant DNA. The IBC-rDNA reviewed all the applications checking to be sure that the research was, or would be, done under the appropriate level of BSL containment. Since 8/6/04 the committee has met three times reviewing 86 applications on 10/13/04, 26 applications on 10/26/04, and 2 applications on 5/9/05. After a thorough review and appropriate follow-up on specific applications, as needed, all applications were approved, and all research done at the Wadsworth Center involving recombinant DNA has been properly reviewed and is performed under all appropriate safety guidelines. You should also be aware that in addition to the IBC-rDNA, the Wadsworth Center has a separate Biohazard Committee that reviews and approves research protocols that involve the use of infectious agents but not the use of recombinant DNA.

Please don't hesitate to call if you have any questions or need clarification. Thank you.

Sincerely,

Robert L. Glaser, Ph.D.