BOLDER BIOPATH. INC
A4627-01
ANIMAL WELFARE ASSURANCE
in accordance with the PHS Policy for
Humane Care and Use of Laboratory Animals

Animal Welfare Assurance for Domestic Institutions

I, Alison M. Bendele, as named Institutional Official for animal care and use at Bolder BioPATH, Inc., provide assurance that this Institution will comply with the Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals (Policy).

I. Applicability of Assurance

This Assurance applies whenever this Institution conducts the following activities: all research, research training, experimentation, biological testing, and related activities involving live vertebrate animals supported by the PHS, DHHS, and/or NSF (if applicable). This Assurance covers only those facilities and components listed below.

A. The following are branches and components over which this Institution has legal authority, included are those that operate under a different name:

Bolder BioPATH, Inc. Bolder BioPATH labs and Vivarium located at 5541 Central Ave, (b) (4) Boulder CO 80301. There are no off-site satellite facilities and/or other covered components.

B. The following are other institution(s), or branches and components of another institution:
N/A

II. Institutional Commitment

A. This Institution will comply with all applicable provisions of the Animal Welfare Act and other Federal statutes and regulations relating to animals.

B. This Institution is guided by the "U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training."

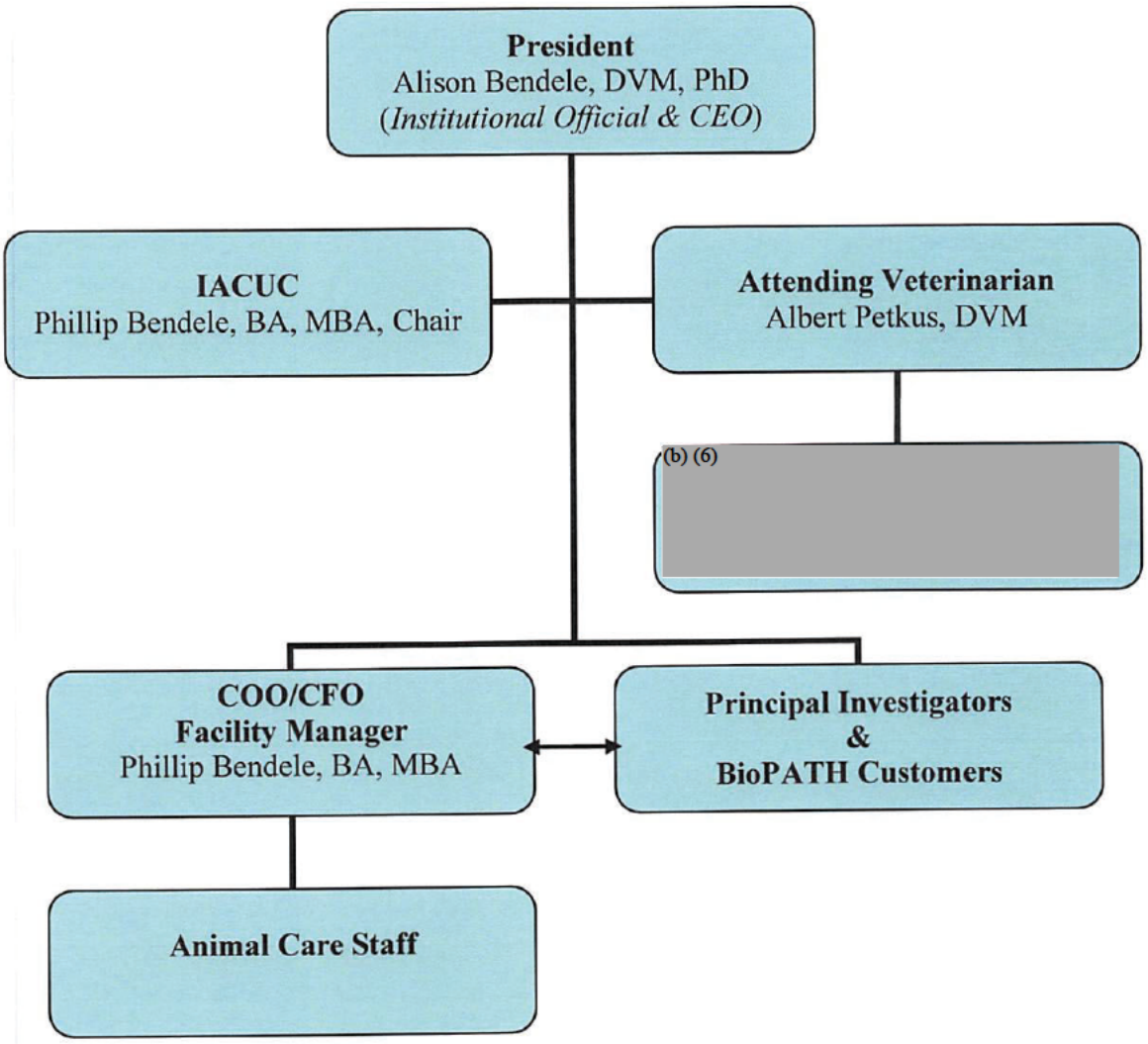
C. This Institution acknowledges and accepts responsibility for the care and use of animals involved in activities covered by this Assurance. As partial fulfillment of this responsibility, this Institution will ensure that all individuals involved in the care and use of laboratory animals understand their individual and collective responsibilities for compliance with this Assurance, and other applicable laws and regulations pertaining to animal care and use.

D. This Institution has established and will maintain a program for activities involving animals according to the *Guide for the Care and Use of Laboratory Animals* (*Guide*).

E. This Institution agrees to ensure that all performance sites engaged in activities involving live vertebrate animals under consortium (subaward) or subcontract agreements have an Animal Welfare Assurance and that the activities have Institutional Animal Care and Use Committee (IACUC) approval.

III. Institutional Program for Animal Care and Use

A. The lines of authority and responsibility for administering the program and ensuring compliance with the PHS Policy are as follows:



B. The qualifications, authority, and percent of time contributed by the veterinarian(s) who will participate in the program are as follows:

1) Name: Albert R. Petkus

Qualifications

- Degrees: DVM, ACLAM Board certified

- Training or experience in laboratory animal medicine or in the use of the species at the institution:
  Dr. Petkus is the Attending veterinarian. Dr. Petkus has over 30 years of experience in laboratory animal medicine and has been ACLAM Board certified since 1980. He was the Director of Laboratory Animal Resources at the University of Colorado at Boulder from 1987 to 2013, where he participated in the administrative and operational control of all University animal facilities and of the University animal care and use program.

- Authority: Dr. Petkus has direct program authority and responsibility for the Institution's animal care and use program including access to all animals.

- Time contributed to program:
  Dr. Petkus is a Part-time contributor and spends approximately five (5) hours per month at the facility. One hundred percent (100%) of this time is dedicated to Animal care and use. In addition, Dr. Petkus contributes on average approximately three (3)

hours per month to the program while off-site reviewing protocols and providing consultation on various program related topics.

(b) (6)

3) Name: Alison Bendele (President & CEO)

Qualifications

- Degrees: DVM, PhD, DACVP

- Training or experience in laboratory animal medicine or in the use of the species at the institution:
  Dr. Bendele has more than 30 years of experience in laboratory animal medicine, pathology, and in vivo model development.

Responsibilities: As needed Dr. Bendele will provide advice and assistance in animal health issues when Dr's Petkus and (b) (6) are unavailable.

Time contributed to program:
Dr. Bendele is typically on the premises during regular business hours. Most of her time is spent as a pathologist, but she is available for consulting on animal health issues.

C. The IACUC at this Institution is properly appointed according to PHS Policy IV.A.3.a. and is qualified through the experience and expertise of its members to oversee the Institution's animal care and use program and facilities. The IACUC consists of at least 5 members, and its membership meets the composition requirements of PHS Policy IV.A.3.b. Attached is a list of the chairperson and members of the IACUC and their names, degrees, profession, titles or specialties, and institutional affiliations.

D. The IACUC will:

1) Review at least once every 6 months the Institution's program for humane care and use of animals, using the *Guide* as a basis for evaluation. The IACUC procedures for conducting semiannual program reviews are as follows:

The IACUC will meet at least once every six months to review the Institutional Program for Humane Care and Use of Animals. The Committee uses the Guide and other pertinent resources, e.g., the PHS Policy, the Code of Federal Regulations (Animal Welfare) as a basis for the review. To facilitate the evaluation, the Committee will use a checklist based on the Sample OLAW Program and Facility Review Checklist from the OLAW website. The evaluation will include, but not necessarily be limited to, a review of the following: a) IACUC Membership and Functions; b) IACUC Records and Reporting Requirements; c) Husbandry and Veterinary Care (all aspects); d) Personnel Qualifications (Experience and Training); e) Occupational Health and Safety; and f) Disaster Planning. In addition, the evaluation will include a review of the Institution's PHS Assurance. If program deficiencies are noted during the review, they will be categorized as significant or minor and the Committee will develop a reasonable and specific plan and schedule for correcting each deficiency. A significant deficiency is one that is or may be a threat to the health and safety of the animals or personnel. No member will be involuntarily excluded from participating in any portion of the reviews.

2) Inspect at least once every 6 months all of the Institution's animal facilities, including satellite facilities and animal surgical sites, using the *Guide* as a basis for evaluation. The IACUC procedures for conducting semiannual facility inspections are as follows:

   At least once every six months at least two (2) members of the IACUC will visit all of the institute's facilities where animals are housed or used, i.e., holding areas, animal care support areas, storage areas, procedure areas, and laboratories where animal manipulations are conducted. Equipment used for transporting of the animals is also inspected. The Committee uses the Guide and other pertinent resources, e.g., the PHS Policy, the Code of Federal Regulations (Animal Welfare) as a basis for the review. To facilitate the evaluation, the Committee will use a checklist based on the Sample OLAW Program and Facility Review Checklist from the OLAW website. If deficiencies are noted during the inspection, they will be categorized as significant or minor and the Committee will develop a reasonable and specific plan and schedule for correcting each deficiency. A significant deficiency is one that is or may be a threat to the health and safety of the animals or personnel. No member will be involuntarily excluded from participating in any portion of the inspections.

3) Prepare reports of the IACUC evaluations according to PHS Policy IV.B.3. and submit the reports to the Institutional Official. The IACUC procedures for developing reports and submitting them to the Institutional Official are as follows:

   Individual IACUC members will convey their observations to the IACUC Chairperson, or his or her designee, who, in turn, will draft the reports using the sample OLAW Semiannual Report to the Institutional Official format from the OLAW website. The reports will contain a description of the nature and extent of the institution's adherence to the Guide and the PHS Policy, identify specifically any departures from the provisions of the Guide and the PHS Policy, and state the reasons for each departure. The reports will distinguish significant deficiencies from minor deficiencies. If program or facility deficiencies are noted, the reports will contain a reasonable and specific plan and schedule for correcting each deficiency. If some or all of the institution's facilities are accredited by AAALAC International the report will identify those facilities as such. Copies of the draft reports will be reviewed, revised as appropriate, and approved by the Committee. The final reports will be signed by a majority of the IACUC members and will include any minority opinions. If there are no minority opinions, the reports will reflect such. Following completion of each evaluation, the completed report will be submitted to the Institutional Official in a timely manner (Approx. 30 to 60 days).

4) Review concerns involving the care and use of animals at the Institution. The IACUC procedures for reviewing concerns are as follows:

Any individual may report concerns to the IO, IACUC Chair, Institutional Veterinarian, or any member of the IACUC either directly, through their supervisor or via an anonymous 1-800 hotline. Notices are located in the animal facilities advising individuals how and where to report animal welfare concerns and stating that any individual who, in good faith, reports an animal welfare concern will be protected against reprisals.

In the event that an IACUC member is made aware of any concerns for the well-being of the research animals, regardless of whether or not it is an official report, the following process MUST be initiated:

1. The member must immediately notify the IACUC chairman and the Attending Veterinarian.
2. The chairman will notify the alleged and his/her supervisor of the complaint and inform him/her of the process.
3. The chairman will notify the IO that an investigation has been initiated.
4. The chairman will notify the entire committee that an investigation has been initiated, including a thorough description of the allegations.
5. The chairman will assign a subcommittee to investigate the veracity of the allegations.
6. The subcommittee will send a report of their findings to the entire committee, including a recommendation for correcting the issue.
7. If anyone on the committee believes a suspension of animal activities should occur, he/she must request a full committee review.
8. If no one requests a full committee review, the chair will decide a suitable corrective action. This may or may not be a suspension of animal activities.
9. If a full committee meeting is requested, a convened meeting must be held to decide whether there will be a suspension of animal activities. A majority of the quorum must approve a suspension of animal activities.
10. If he/she did not make the initial claim anonymously, the complainant will be informed of the results of the investigation.
11. The AV may immediately suspend any animal activities, pending a timely review of the matter by the IACUC.
12. The committee has the power to temporarily suspend animal activities until the investigation is completed.
13. The committee may decide on any outcome approved by a majority of a convened meeting, including
    a. Full suspension of a protocol
    b. Suspension of all of a PI's protocols
    c. Suspension of employees
    d. Suspension of specific procedures on all protocols
14. The affected person to the committee may appeal any outcome of an investigation.
15. The IO may not override the committee's decision.
16. Activities may be suspended permanently or temporarily pending a corrective action.
17. The IO is responsible for reporting animal activity suspensions to the proper authorities.

5) Make written recommendations to the Institutional Official regarding any aspect of the Institution's animal program, facilities, or personnel training. The procedures for making recommendations to the Institutional Official are as follows:

Recommendations regarding any aspects of the institution's animal program or facilities are discussed and developed by the Committee. The Committee's recommendations are included in the IACUC Meeting minutes or a report of the IACUC's evaluations or a separate letter. Such documents are reviewed and approved by the Committee and then submitted to the IO.

6) Review and approve, require modifications in (to secure approval), or withhold approval of PHS-supported activities related to the care and use of animals according to PHS Policy IV.C.1-3. The IACUC procedures for protocol review are as follows:

Prior to the review, the protocol will be sent to the Attending Veterinarian for pre-review, as well as being reviewed by the IACUC coordinator. IACUC procedures for protocol review:

a. Prior to the review, each IACUC member will be provided, via email or hardcopy, with written descriptions of activities (protocols) that involve the care and use of animals and any member of the IACUC may obtain, upon request, full committee review of those protocols. Members will have at least 3 business days to review protocols and request full committee review (FCR). A non-response will be considered silent assent.

b. If FCR is not requested by at least one member of the IACUC, the chairperson will appoint at least 2 committee members to review the protocol, defined as Designated Member Review (DMR).

Designated Member Review:

a. May only be used after all members have been provided the opportunity to call for FCR. If any member requests full committee review, FCR must be used. If not requested, then the IACUC Chairperson may appoint one or more appropriately qualified IACUC members to serve as the designated member reviewer.

b. Designated member reviewer may not be the principal investigator listed in the protocol.

c. **The designated reviewers have the authority to (1) approve, (2) require modifications to secure approval, or (3) request full committee review of those protocols.** It *can not* result in withholding approval. Other IACUC members may provide the designated reviewer with comments and/or suggestions for the reviewer's consideration only. That is, concurrence to use the DMR method may not be conditioned.

d. If multiple designated reviewers are used, their decisions must be unanimous; if their decisions are not unanimous, the protocol will be referred for FCR.

e. DMR reviewers review identical versions of the protocol and if modifications are requested by any one of the reviewers then the other reviewers must be aware of and agree to the modifications.

c. **If FCR is requested**, approval of those protocols may be granted only after review at a convened meeting of a quorum of the IACUC and with the approval vote of a majority of the quorum present. A formal vote must be held. It is not acceptable to poll each member individually in place of a convened quorum.

d. FCR may result in an outcome of (1) approve, (2) require modifications to secure approval, or (3) withhold approval.

e. Approval of protocols via DMR are maintained and recorded in the minutes of the next convened IACUC meeting.

Note: Any use of telecommunications will be in accordance with NIH Notice NOT-OD-06-052 of March 24th, 2006, entitled Guidance on Use of Telecommunications for IACUC Meetings under the PHS Policy on Humane Care and Use of Laboratory Animals.

Required modifications Subsequent to FCR. When the IACUC requires modifications (to secure approval) of a protocol, such modifications are reviewed as follows:

1. If *all* members of the IACUC *are* present at a meeting, the committee may vote to require modifications to secure approval and have the revised research protocol reviewed and approved by designated member review, or returned for FCR at a convened meeting.

2. If *all* members of the IACUC *are not* present at a meeting, the committee may use DMR subsequent to FCR according to the following stipulations:

   a. *All IACUC members have agreed in advance in writing, that the quorum of members present at a convened meeting may decide by unanimous vote to use DMR subsequent to FCR when modification is needed to secure approval. However, any member of the IACUC may, at any time, request to see the revised protocol and/or request FCR of the protocol.*

3. If all members are not present *and* the IACUC lacks written standard procedures as described above, the committee has the option to vote to return the protocol for FCR at a convened meeting or to employ DMR. All members, including the members not present at the meeting, must have the revised research protocol available to them and must have the opportunity to call for FCR. A DMR may be conducted *only* if all members of the committee have had the opportunity to request FCR and none have done so.

When the IACUC uses DMR, the approval date is the date that the designated member(s) approve the study. Animal work conducted before this date will be reported to OLAW as a serious noncompliance with the PHS Policy. When electing to use DMR, the IACUC Chairperson appoints one or more appropriately qualified IACUC members to serve as the designated reviewer(s).

Required modifications Subsequent to DMR. When a designated member reviewer requires modifications (to secure approval), of a protocol, such modifications are reviewed as follows:

1. By all of the designated member reviewers from the previous round of DMR, even if he/she did not specifically require modifications.

Minor Modifications.

1. Minor modifications of an administrative nature, i.e., typographical or grammatical errors, required signatures, requested animal strains, staff changes, etc. may be completed and confirmed by IACUC administrative/support personnel.

Conflict of Interest

No member may participate in the IACUC review or approval of a protocol in which the member has a conflicting interest (defined as the Principal Investigator) except to provide information requested by the IACUC; nor may a member who has a conflicting interest contribute to the constitution of a quorum. A principal investigator must physically leave the room before a vote is held on their study. Enough IACUC members must be present to maintain a quorum after a principal investigator leaves the room.

The IACUC may invite consultants to assist in reviewing complex issues. Consultants may not approve or withhold approval of an activity or vote with the IACUC unless they are also members of the IACUC.

Expedited Protocol Review:

There is no expedited protocol review.

Procedures for Review of Significant Changes to Protocols

Review and approval of significant changes are handled in the same manner as new protocols. See Section 1 above.

Examples of changes considered to be significant include, but are not limited to, changes:

a. in the objectives of a study
b. from non-survival to survival surgery;
c. resulting in greater discomfort or in a greater degree of invasiveness;
d. in the species or in approximate number of animals used;
e. in Principal Investigator;
f. in anesthetic agent(s) or the use or withholding of analgesics;
g. in the method of euthanasia; and
h. in the duration, frequency, or number of procedures performed on an animal
i. in the number of animals per study endpoint.

Notifying Investigators of the Results of Review

Principal Investigators are notified either by e-mail or letter from the IACUC Chairperson. The Institutional Official is notified by receiving a copy of the PI's notification letter and/or a copy of the IACUC meeting minutes. If protocol approval is withheld, the investigator may respond either in person or in writing at the next convened meeting of the IACUC.

Approval Period

- All protocols are approved for 1 year and require a full re-submittal of the protocol for review for renewal.

7) Review and approve, require modifications in (to secure approval), or withhold approval of proposed significant changes regarding the use of animals in ongoing activities according to PHS Policy IV.C. The IACUC procedures for reviewing proposed significant changes in ongoing research projects are as follows:

Review and approval of significant changes are handled in the same manner as new protocols. See Paragraph III.D.6. above.

Examples of changes considered to be significant include, but are not limited to, changes:

a. in the objectives of a study
b. from non-survival to survival surgery;
c. resulting in greater discomfort or in a greater degree of invasiveness;
d. in the species or in approximate number of animals used;
e. in Principal Investigator;
f. in anesthetic agent(s) or the use or withholding of analgesics;
g. in the method of euthanasia; and
h. in the duration, frequency, or number of procedures performed on an animal

8) Notify investigators and the Institution in writing of its decision to approve or withhold approval of those activities related to the care and use of animals, or of modifications required to secure IACUC approval according to PHS Policy IV.C.4. The IACUC procedures to

notify investigators and the Institution of its decisions regarding protocol review are as follows:

Principal Investigators are notified either by e-mail or letter from the IACUC Chairperson. The Institutional Official is notified by receiving a copy of the PI's notification letter and/or a copy of the IACUC meeting minutes. If protocol approval is withheld, the investigator may respond either in person or in writing at the next convened meeting of the IACUC.

9) Conduct continuing review of each previously approved, ongoing activity covered by PHS Policy at appropriate intervals as determined by the IACUC, including a complete review at least once every 3 years according to PHS Policy IV.C.1.-5. The IACUC procedures for conducting continuing reviews are as follows:

All ongoing activities are monitored continuously by the animal care and use staff and the associated protocols are reviewed by the IACUC every year.

If activities will continue beyond the expiration date, a new protocol must be submitted, reviewed, and approved [prior to expiration of the original or preceding protocol] as described in Paragraph III.D.6. above. Annual protocol reviews are recorded in the IACUC meeting minutes. The IACUC meeting minutes are reviewed and approved by the Committee."

10) Be authorized to suspend an activity involving animals according to PHS Policy IV.C.6. The IACUC procedures for suspending an ongoing activity are as follows:

The IACUC may suspend an activity that it previously approved if it determines that the activity is not being conducted in accordance with applicable provisions of the Animal Welfare Act, the Guide, the institution's Assurance, or IV.C.1.a.-g. of the PHS Policy. The IACUC may suspend an activity only after review of the matter at a convened meeting of a quorum of the IACUC and with the suspension vote of a majority of the quorum present. If the IACUC suspends an activity involving animals, or any other institutional intervention results in the temporary or permanent suspension of an activity due to noncompliance with the Policy, Animal Welfare Act, the *Guide*, or the institution's Assurance, the Institutional Official in consultation with the IACUC shall review the reasons for suspension, take appropriate corrective action, and report that action with a full explanation to OLAW.

E. The risk-based occupational health and safety program for personnel working in laboratory animal facilities and personnel who have frequent contact with animals is as follows:

OHS Program Overview - institutional OHS program involves a collaborative effort between the AV, the backup AV, the COO/CFO, the Operations Manager, the IACUC committee, and a 3rd party Occupational Health provider. The OHS program is described in detail in the Occupational Health & Safety Program Manual.

Hazard Identification & Risk Assessment – The hazard identification process includes:

- AV input regarding hazards presented by the species and strains of animals present in our facility.
- Quarterly review of records of accidents, near accidents, and signs of exposure for potential hazards that were not previously identified.
- Contracted 3rd party Occupational Health company to conduct facility walk thru, OHS program review, and perform risk assessments on staff.
- Review MSDS and instruction manuals from manufacturers.
- Review of worker's compensation claims.
- Shared sense of responsibility for the overall OHS program across our entire staff and ask that staff members report any concerns directly to management.

Once hazards are identified, they are assessed by a combination of management, the AV, researchers, the Operations Manager, and/or the 3rd party occupational health experts to determine hazard-level and determine the proper procedures to minimize the risk moving forward. Risk levels are determined by assessing the consequences of exposure and the likelihood of possible exposure.

Personnel OHS Training - Before entering the animal facility or the wet lab, all employees undergo an initial OHS training consisting of reading the BBP OHS manual and a PowerPoint presentation led by management, in consultation with the AV. Before handling chemical and biological agents, staff must demonstrate knowledge of safe handling practices (based either on previous experience or in-person training). As a backup measure, the entire staff receives training in reading an MSDS and in hazard icons.

All employees must complete an annual test to demonstrate continuing understanding. Any employees who do not correctly answer all questions in any topic are immediately re-trained before entry into the animal facility or wet lab. Specifics of the training procedures are described in SOP# OP-03.

Hazard Communication – Principal Investigators oversee OHS compliance & communication on all activities related to their study protocol, including animal husbandry practices. MSDS are available for all hazardous chemicals in use. Hazards are identified in the animal facility using signage in the hallways, on room doors, cage cards, cagewasher, etc. Non-employees that enter the facility are verbally warned of the risks of entering the facility prior to entering but are not required to enroll in the Occupation Health and Safety Program. See Occupational Health & Safety Manual for specific information about hoods, etc. & SOP's for specific procedures contain safety information.

Medical Evaluation & Preventative Health – All staff members complete a medical evaluation questionnaire prior to starting work and then annually. The evaluation is sent to a contracted occupational health provider for review by a medical doctor. The questionnaire contains questions about frequency of exposure to allergens, types of species exposed to, and the employee's medical condition and history. Current Hep B & tetanus vaccinations are required of all employees, through the 3rd party occupational health provider. Any employee that does not wish to receive the vaccinations must complete a waiver.

Allergic symptomatic employees are required to wear additional PPE to enter the animal facility (change of clothes, N95 respirator, gloves, dedicated animal facility shoes or shoe covers).

Annually, all staff members are required to complete a questionnaire to assess their medical fitness to wear a respirator (evaluated by 3rd party occupational health company) and an annual fit test is required (conducted in house using the Fit Test kit recommended by respirator manufacturer).

Reporting & Evaluating Exposure to Hazards - Accidents, near misses, and signs of suspected exposures are recorded in a digital record on the company server and immediately reported to the operations manager/safety officer for review.

Common Identified Hazards and Risks - Allergic reactions are among the most common conditions that adversely affect the health of personnel working with laboratory animals. Major sources of allergens include rodent urine and saliva (dirty bedding).

Procedures in Place to Alleviate Hazards and Minimize Risks - Measures taken to minimize exposure include the following: education, protective clothing, gloves, and hand washing. To reduce aerosol exposure, the use of bedding dump stations, appropriate

hoods or laminar flow benches/cabinets, and/or other respiratory protection, e.g. N95 masks, are worn when performing cage changing and/or handling dirty bedding.

Immunizations - Vaccinations against tetanus and hepatitis, although not a condition of employment, are strongly recommended. This is reiterated and reinforced during routine OH&S training.

Miscellaneous - Precautions taken during pregnancy, illness or decreased immunocompetence. Personnel are advised during training that if they are planning to become pregnant, are pregnant, are ill, or have impaired immunocompetence that they should consult a health care professional/physician regarding such conditions and how they might pertain to their working with laboratory animals. If warranted, any work restrictions and/or accommodations are coordinated among the individual, his/her health care professional, and the COO.

Provisions for personnel who are not involved in animal care and/or use but nevertheless need to enter areas when animals are housed or used. The housekeeping staff is not routinely allowed access to the animal facilities. In situations where housekeeping, maintenance, or other non-animal care and use personnel must access the animal rooms, they are briefed on appropriate precautions and provided any appropriate PPE and are then are permitted in for a limited amount of time. A member of the animal care staff will be available for escort if needed. If there is extensive or prolonged work to be done the animals are removed prior to the individuals being allowed into the room.

Availability and procedures for treatment in the event of bites, scratches, illness or injury. Provisions for first-aid and the treatment of minor injuries is available on site. If required, treatment is also available at the local hospital, Boulder County Community Hospital (~2 miles away).

Procedures/program for reporting and tracking injuries and illnesses - Occupational injuries are monitored by the COO. Reporting of all work-related illness and/or injury is mandatory. This requirement is covered and during OH&S training and Animal Care & Use Training.

Additional Information - We have a comprehensive text based OHSP that is supplemented with an annual test and re-training for any topic that any employee did not achieve 100% of the correct questions. This program includes: identification and enrollment of personnel, hazard / risk assessments and occupational health and safety training. The program is also required for all persons, not just those in direct contact with animals. Major topics include:

- Personal Hygiene in a Lab Environment
- Housekeeping and Sanitation
- Bites and Scratches
- Sharps
- Lifting and Handling Heavy Loads
- Facilities, Procedures, and Monitoring
- Chemical Hazards
- Biological Hazards
- Antibiotics and Controlled Substances
- Animal and Latex Allergies
- Zoonoses
- Laboratory Personal Protective Equipment (PPE)
    - Eye and Face Protection
    - Safety Glasses
    - Safety Goggles
    - Face shields
    - Prescription Lenses
    - Contact Lenses
    - Foot Protection

Hand Protection
Head Protection
Hearing Protection
Body Protection
Respiratory Protection

F. The total gross number of square feet in each animal facility (including each satellite facility), the species of animals housed there and the average daily inventory of animals, by species, in each facility is provided in the attached Facility and Species Inventory table.

(See Section X)

G. The training or instruction available to scientists, animal technicians, and other personnel involved in animal care, treatment, or use is as follows:

Animal Care and Use Personnel – The training or instruction available to scientists, animal technicians, and other personnel involved in animal care, treatment, or use is as follows: All personnel performing procedures using animals must be identified in the Institutional Animal Care and Use Protocol. A description of each individual's qualifications, experience and/or training with the specific animal species, model and procedures must be provided for IACUC review. Any person needing additional protocol-specific training will be identified during the review process and such required training will be a condition of approval of the protocol.

All staff handling animals or performing any other animal work are trained by the AV, senior management, or a designee appointed by management prior to any work with animals, including occupational health and safety trainings. Trainings are a mix of in-person demonstration, PowerPoint presentations, group trainings, and/or web-based trainings. Completions of completed trainings are recorded electronically in the "Training Log", which covers the laws and regulations covering laboratory animal care and use with an emphasis on the contents of the NRC Guide and the 3R's. The training includes training or instruction on research or testing methods that minimize the numbers of animals required to obtain valid results and limit animal pain or distress as well as other requirements delineated in 9 CFR, Part 2, Subpart C, Section 2.32(c). following areas:

1. Humane methods of animal maintenance and experimentation, including:
    a. The basic needs of each species of animal;
    b. Proper handling and care for the various species of animals used by the facility;
    c. Proper pre-procedural and post-procedural care of animals; and
    d. Aseptic surgical methods and procedures;

Specifically, training and instruction of personnel must include guidance in at least the

2. The concept, availability, and use of research or testing methods that limit the use of animals or minimize animal distress;

3. Proper use of anesthetics, analgesics, and tranquilizers for any species of animals used by the facility;

4. Methods whereby deficiencies in animal care and treatment are reported, including deficiencies in animal care and treatment reported by any employee of the facility. No facility employee, Committee member, or laboratory personnel shall be discriminated against or be subject to any reprisal for reporting violations of any regulation or standards under the Act;

5. Utilization of services (e.g., National Agricultural Library, National Library of Medicine) available to provide information:
    a. On appropriate methods of animal care and use;
    b. On alternatives to the use of live animals in research;

c. That could prevent unintended and unnecessary duplication of research involving animals; and
d. Regarding the intent and requirements of the Animal Welfare Act and USDA-APHIS Regulations

On-line training may be used and accepted in lieu in-house training. Any use of on-line training to fulfill training requirements must be approved by the IACUC. Approval and completion of on-line training will be documented.

Specialized Training: Training in experimental methods, i.e., specific animal manipulations and techniques and in the care of new and nontraditional laboratory animal species, will be conducted based on the types of research being conducted and the species being used at the institution.

Note: For investigators transferring from other facilities at which they have received similar training, verification of previous training may be accepted in lieu some Institutional required training. Acceptance of previous training in lieu of the Institution's training is solely at the IACUC's discretion.

Additional Mandatory Training
Occupational Health and Safety Training. This training is required for all animal users and handlers before they can begin working with animals. Topics covered can include general laboratory safety as well as specific animal safety considerations and Bolder BioPATH requirements for hazard work. Successful completion of the training is documented by management approval on the individual employees training log.

Standard Operating Procedures Training. This training is required of all personnel who will be responsible for fulfilling the SOP requirements. This is updated at regular intervals per the SOP requirements. The SOPs are task specific and documentation of training is documented by management approval on the individual employees training log.

Environment Health and Safety Seminars. Staff members are given an initial training and then test annually to ensure on-going competency. Any employees that do not achieve a 100% are re-trained.

Optional Training
AALAS Technician Training. This training is available to all interested researchers/employees who would like to become AALAS certified. Online training is done through the AALAS learning library. In addition, in-house classroom training is done periodically as staff needs dictate and administered by the attending veterinarian.

IACUC Training - Each IACUC member will be provided with a copy of the following:
1) The PHS Policy for the Humane Care and Use of Laboratory Animals;
2) The National Research Council (NRC) Guide for the Care and Use of Laboratory Animals;
3) The ARENA/OLAW IACUC Guidebook;
4) The AVMA Guidelines on Euthanasia;
5) A copy of this Assurance.

All members of the IACUC will complete the Essentials for IACUC Members Curriculum located at the American Association for Laboratory Animal Science website, www.aalaslearninglibrary.org or the Collaborative Institutional Training Initiative website, www.citiprogram.org

All IACUC members will visit the OLAW website at least annually and will complete the IACUC tutorial module (initial visit) and will familiarize themselves with the other pertinent modules and information, e.g., OLAW FAQs, Policies and Laws, Guidance, Educational and other Resources.

Attendance at an IACUC 101, IACUC 102, IACUC Advanced, PRIM&R/ARENA IACUC meeting, or similar course may be substituted for any required IACUC training session.

IV. Institutional Program Evaluation and Accreditation

All of this Institution's programs and facilities (including satellite facilities) for activities involving animals have been evaluated by the IACUC within the past 6 months and will be reevaluated by the IACUC at least once every 6 months according to PHS Policy IV.B.1.-2. Reports have been and will continue to be prepared according to PHS Policy IV.B.3. All IACUC semiannual reports will include a description of the nature and extent of this Institution's adherence to the PHS Policy and the *Guide*. Any departures from the *Guide* will be identified specifically and reasons for each departure will be stated. Reports will distinguish significant deficiencies from minor deficiencies. Where program or facility deficiencies are noted, reports will contain a reasonable and specific plan and schedule for correcting each deficiency. Semiannual reports of the IACUC's evaluations will be submitted to the Institutional Official. Semiannual reports of IACUC evaluations will be maintained by this Institution and made available to the OLAW upon request.

This Institution is Category 1—accredited by the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC). As noted above, reports of the IACUC's semiannual evaluations (program reviews and facility inspections) will be made available upon request. The report of the most recent evaluations (program review and facility inspection) is attached. (Section XI)

V. Recordkeeping Requirements

A. This Institution will maintain for at least 3 years:
   1. A copy of this Assurance and any modifications made to it, as approved by the PHS
   2. Minutes of IACUC meetings, including records of attendance, activities of the committee, and committee deliberations
   3. Records of applications, proposals, and proposed significant changes in the care and use of animals and whether IACUC approval was granted or withheld
   4. Records of semiannual IACUC reports and recommendations (including minority views) as forwarded to the Institutional Official (Alison Bendele).
   5. Records of accrediting body determinations

B. This Institution will maintain records that relate directly to applications, proposals, and proposed changes in ongoing activities reviewed and approved by the IACUC for the duration of the activity and for an additional 3 years after completion of the activity.

C. All records shall be accessible for inspection and copying by authorized OLAW or other PHS representatives at reasonable times and in a reasonable manner.

VI. Reporting Requirements

A. The Institutional reporting period is the calendar year (January 1 – December 31). The IACUC, through the Institutional Official, will submit an annual report to OLAW by January 31 of each year. The annual report will include:
   1. Any change in the accreditation status of the Institution (e.g., if the Institution obtains accreditation by AAALAC or AAALAC accreditation is revoked)
   2. Any change in the description of the Institution's program for animal care and use as described in this Assurance
   3. Any change in the IACUC membership
   4. Notification of the dates that the IACUC conducted its semiannual evaluations of the Institution's program and facilities (including satellite facilities) and submitted the evaluations to the Institutional Official, Alison Bendele, President/CEO.

5. Any minority views filed by members of the IACUC

B. The IACUC, through the Institutional Official, will promptly provide OLAW with a full explanation of the circumstances and actions taken with respect to:
   1. Any serious or continuing noncompliance with the PHS Policy
   2. Any serious deviations from the provisions of the *Guide*
   3. Any suspension of an activity by the IACUC

C. Reports filed under VI.A. and VI.B. above should include any minority views filed by members of the IACUC.

VII. Institutional Endorsement and PHS Approval

A. Authorized Institutional Official

Name: Alison Bendele DVM, PhD, DACVP

Title: President/CEO

Name of Institution: Bolder BioPATH, Inc.

Address:
5541 Central Ave., (b) (4)
Boulder, CO 80301

Phone: (b) (6) Fax: (b) (6)

E-mail: Alison@bolderbiopath.com

Acting officially in an authorized capacity on behalf of this Institution and with an understanding of the Institution's responsibilities under this Assurance, I assure the humane care and use of animals as specified above.

Signature (b) (6) Date: 11/29/18

B. PHS Approving Official *(to be completed by OLAW)*

Venita B. Thornton, DVM, MPH
Senior Assurance Officer
Office of Laboratory Animal Welfare (OLAW)
National Institutes of Health
6700B Rockledge Drive
Suite 2500 - MSC 6910
Bethesda, Maryland 20892
Email: thorntov@od.nih.gov
Phone: (301) 451-4208
Fax: (301) 480-3421

Venita B. Thornton -S
Digitally signed by Venita B. Thornton -S
Date: 2019.05.03 10:39:15 -04'00'

Signature: Date: November 30, 2018

Assurance Number: D16-00840 (A4627-01)

Effective Date: November 30, 2018 Expiration Date: November 30, 2022

VIII. Membership of the IACUC

Date: July 2018	
Name of Institution: Bolder BioPATH, Inc.	
Assurance Number: A4627-01	
IACUC Chairperson	
Name*: Phillip Bendele	
Title*: COO/CFO	Degree/Credentials*: BA, MBA
Address*: 5541 Central Ave. (b) (4) Boulder, CO 80301	
E-mail*: phillip@bolderbiopath.com	
Phone*: (b) (6)	Fax*: (b) (6)

IACUC Roster

Name of Member/ Code**	Degree/ Credentials	Position Title***	PHS Policy Membership Requirements****
Albert Petkus	DVM, ACLAM	Attending Veterinarian	Veterinarian
Phillip Bendele	BA, MBA	COO/CFO – Facility Manager	Member
Jed Pheneger	BS, MT/HTL (ASCP)	Principal Investigator	Scientist
(b) (6)			Nonscientist; Nonaffiliated
			Nonscientist; Nonaffiliated
			Nonscientist

* This information is mandatory.

** Names of members, other than the chairperson and veterinarian, may be represented by a number or symbol in this submission to OLAW. Sufficient information to determine that all appointees are appropriately qualified must be provided and the identity of each member must be readily ascertainable by the institution and available to authorized OLAW or other PHS representatives upon request.

*** List specific position titles for all members, including nonaffiliated (e.g., banker, teacher, volunteer fireman; not "community member" or "retired").

**** PHS Policy Membership Requirements:

Veterinarian	veterinarian with training or experience in laboratory animal science and medicine or in the use of the species at the institution, who has direct or delegated program authority and responsibility for activities involving animals at the institution.
Scientist	practicing scientist experienced in research involving animals.
Nonscientist	member whose primary concerns are in a nonscientific area (e.g., ethicist, lawyer, member of the clergy).
Nonaffiliated	individual who is not affiliated with the institution in any way other than as a member of the IACUC and is not a member of the immediate family of a person who is affiliated with the institution. This member is expected to represent general community interests in the proper care and use of animals and should not be a laboratory animal user. A consulting veterinarian may not be considered nonaffiliated.

[*Note: all members must be appointed by the CEO (or individual with specific written delegation to appoint members) and must be voting members. Non-voting members and alternate members must be so identified.*]

IX. Other Key Contacts (optional)

If there are other individuals within the Institution who may be contacted regarding this Assurance, please provide information below.

Contact #1	
(b) (6)	
Contact #2	
Name:	
Title:	
Phone:	E-mail:

X. Facility and Species Inventory

Date: January			
Name of Institution: Bolder BioPATH, Inc.			
Assurance Number:			
Laboratory, Unit, or Building*	Gross Square Feet [*include service areas*]	Species Housed [*use common names, e.g., mouse, rat, rhesus, baboon, zebrafish, African clawed frog*]	Approximate Average Daily Inventory
(b) (4)	~8700	Mouse	1,000
		Rat	400

*Institutions may identify animal areas (buildings/rooms) by a number or symbol in this submission to OLAW. However, the name and location must be provided to OLAW upon request.