

Director of Avian Biology

Job Description

Reporting Structure - this position reports to the Chief Operating Officer

General

The Director of Avian Biology will be responsible for all activities at Crystal Bioscience that are conducted in any of the Crystal Bioscience animal facilities. These responsibilities lie in six major areas: (1) activities relating to the physiological evaluation of animals including but not limited to immunization and confirmation of genotypes, (2) maintenance of optimal animal performance through appropriate nutritional regimes, photoperiods, insemination and incubation (3) maintenance and preventative maintenance of all equipment for housing, breeding, brooding and incubation of birds (4) compliance with regulatory agencies such as OLAW, IACUC and other agencies that may regulate and/or monitor activities at Crystal Bioscience, (5) implementation and execution of biosecurity measures to ensure the health and welfare of all birds owned and managed by Crystal Bioscience (6) developing and maintaining a current and complete record of animal performance, location, pedigree and history (7) supervision, education and monitoring of all personnel working directly with the birds in Crystal Bioscience's animal facilities.

Physiological evaluation of animals

This activity will be conducted in collaboration with others in the company, particularly the Chief Operating Officer, the Chief Scientific Officer, the Director of Molecular Biology and staff working under the supervision of the Director of Molecular Biology. Tasks will be scheduled in consultation with teams developing products (e.g the SynV team). The incumbent will advise others of the availability of resources in the animal facility. He/she will take advisement from others of projected animal requirements and schedule their production accordingly. Requests for samples will be received and scheduled. Routine samples (eg combs for sex-specific PCRs) will be collected and submitted for analysis. Potential bottlenecks will be communicated and resolutions will be implemented.

Maintenance of optimal animal performance

Appropriate photoperiods will be maintained throughout the animal facility. Birds will be moved from brooder to growing to adult rooms according to the accepted schedule. Appropriate feeds will be given to each bird. The Director will also schedule replacement of wild-type birds in the flocks by importing eggs from clean suppliers, hatching chicks and growing birds to sexual maturity. The Director will review weekly performance and remove birds whose productivity no longer supports the objectives of the company. Fertility will be monitored weekly and communicated to the animal facility staff to develop best practices. Likewise, hatches will be assessed weekly to monitor

equipment, bird and operator performance and provide feedback on current practice. In general, both fertility and hatchability of fertile eggs will be maintained at 90% or higher.

Maintenance and preventative maintenance

The incumbent will be responsible for the maintenance and cleanliness of the animal facility and associated equipment. In general, maintenance will be accomplished through development and adherence to a documented preventative maintenance program and SOPs that are communicated to the animal facility staff. Notable areas where documented preventative maintenance is required is egg storage, incubators, hatchers, brooders, HVAC, standby generator, alarm systems, caging and automatic watering systems. The Director will maintain an inventory of spare parts for each of the above areas to meet the needs of scheduled equipment servicing and repairs. Given the unique nature of some of the equipment, it is understood that in some cases, the Director will provide hands-on repairs and servicing. The Director will review all aspects of the maintenance, preventative maintenance and standby power components of the program and from time to time make recommendations to senior management regarding modernization and upgrading of the infrastructure.

Regulatory Compliance

The Director of Avian Biology will be a standing member of the IACUC and will provide animal facility reports as needed. The Occupational Health component of the IACUC obligations will be implemented by the Director. The Director will file INADs with the FDA as needed and annually apply for fee waivers. The Director will also obtain USDA certifications as needed to import and export birds.

Biosecurity

The Director will be responsible for ensuring that the birds are maintained in a biosecure environment. Protocols to meet this objective will be developed in consultation with the company's veterinarian and the COO. These protocols will range from SOPs for emptying trash to broad-based disease monitoring using the resources of the California Animal Health and Food Safety (CAHFS) Lab. Records of these activities will become part of the IACUC record. Hatchers and incubators will be routinely monitored for the presence of commensal and pathogenic organisms. Birds will be monitored annually for the presence of antibodies to common pathogens. Adherence to best practices in the use of foot baths and the use of protective clothing are the responsibility of the Director.

Schedules for routine cleaning of cages and rooms will be developed, implemented and documented. Schedules for routine inspection of birds and grooming (eg. clipping beaks and toenails) also contribute to maintenance of the health of the birds. Cages and equipment will be serviced and maintained in good working order through internal staff allocations or through external contracts. The maintenance and preventative maintenance aspects of the Director's responsibilities can also be viewed as part of his/

her overall biosecurity program. Continual training and monitoring of the animal facility staff will be essential to meet the objectives of the biosecurity program.

A separate part of biosecurity is development of a repository of frozen semen. Crystal has developed a protocol for semen cryopreservation that appears to yield adequate fertility for insurance purposes. This nascent program requires implementation, documentation and periodic testing to provide confidence that it is functioning as intended. The Director of Avian Biology will have responsibility for the cryobank. Selection of males as semen donors to the cryobank will be made in consultation with the COO, CSO and their Directors.

Animal records

Crystal Bioscience is developing Pedibase, a FileMaker based database to track the provenance, location, analysis, reproductive activity and disposition of each bird in the animal facility. It is intended that this record should track through generations to provide a pedigree. The original design also included generation of a record of tasks such as cleaning of cages, etc. Pedibase is functional but requires considerable additional work to bring it to its full potential. Responsibility of developing Pedibase through FileMaker consultants lies with the Director of Animal Biology and the COO. The incumbent will also investigate and if appropriate recommend alternative (or potentially supplemental) systems such as ZooEasy (www.zooeasy.com).

A part of the animal record keeping responsibility is ensuring that the most up-to-date and reliable systems for animal tagging are implemented. Even more important is continued surveillance to ensure that the animal facility staff follow protocols for tagging and banding to ensure that animals are never lost. It is the responsibility of the Director to have a complete and accurate inventory of all birds and all cages at all times. As technologies such as RFIDs, bar coding and hand-held wireless devices become available, the Director will recommend investments in these technologies to senior management as appropriate.

Supervision, education and monitoring of animal facility staff

Execution of the responsibilities of the Director depend on the ability of the incumbent to supervise the animal facility staff, educate them in best practices and monitor their adherence to protocol. Therefore excellent personnel management skills are essential for success. Organization, setting expectations and providing regular feedback on performance are an integral part of the daily workplan of the incumbent.