



National Institute of
Environmental Health Sciences
Division of Translational Toxicology

Contract Concept Review for Pathology Support for the Division of Translational Toxicology, NIEHS

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NTP Board of Scientific Counselors

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Purpose

**Provide a Variety of Pathology Support for NIEHS (DTT and DIR)
Research Programs**



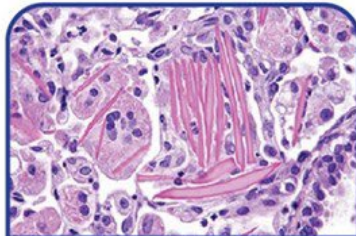
Pathology Support Contracts – Outline

- Background
- Histopathology and pathology peer review
- Necropsy and histology
- Personnel support
- Imaging technologies
- Investigative/mechanistic studies
- Scientific publication support
- Emerging technology and needs

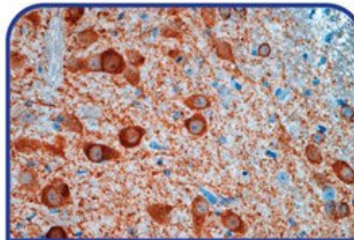


Pathology Support Contracts - Background

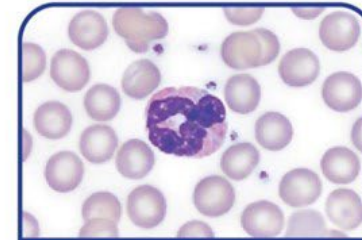
- In place for nearly 40 years
- Initially provided support for DNTP Pathology Peer Review process
- Evolved to support DIR research
- Support for DTT and DIR, and through DTT other federal agencies, e.g. NCTR, NIOSH
- Incorporated and increased use of newer technologies such as digital imaging and molecular pathology techniques and the associated professional and technical expertise



**Pathology Evaluation
and Peer Review**



Pathology Support



Clinical Pathology



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Histopathology and Pathology Peer Review

- Primary pathology evaluations for DTT and DIR studies
- Pathology peer review for DTT/NTP studies
- Wide range of organ systems expertise needed to support histopathology





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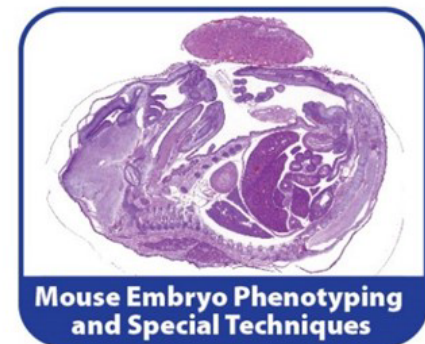
Necropsy and Histology

- Necropsy and histology support for DTT and DIR studies
- Immunohistochemistry/immunofluorescence
- In situ hybridization
- Frozen sections
- Electron microscopy



Personnel support

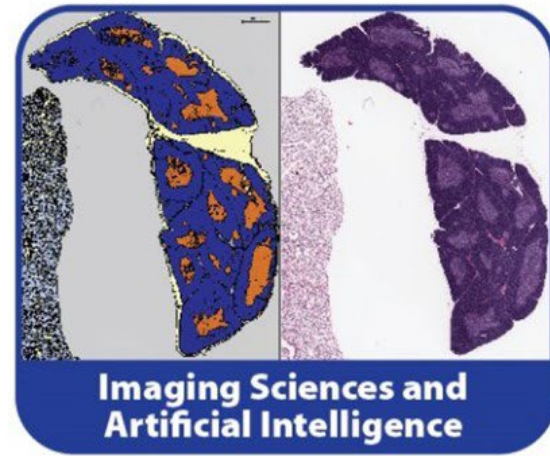
- Professional and technical support is used for several groups and core laboratories:
 - Pathologists for DTT studies
 - Technicians, specialists, and pathologists for DTT Labs:
 - Histology
 - Immunohistochemistry
 - Electron Microscopy
 - Clinical Pathology
 - Imaging Sciences
 - Mouse Embryo Phenotyping Core
 - Laser Capture Microdissection
 - Laboratory Animal Medicine Group support, veterinary and technical
 - Omics/bioinformatics and in-vitro culture systems support for Molecular Pathology Group





Imaging Sciences

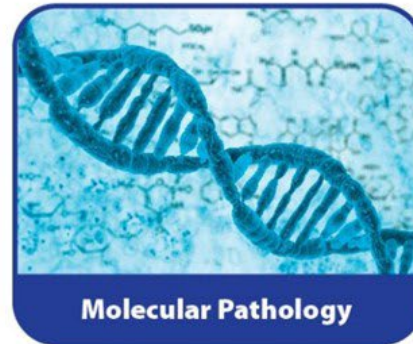
- Increased and expanded use of new imaging technologies
 - Artificial intelligence
 - Image analysis
 - Telepathology
 - Whole-slide scanning
 - Specialized technologies including:
 - Magnetic Resonance Imaging (MRI)
 - Computed Tomography (CT)





Investigative/Mechanistic studies

- In vitro culture systems
- In vivo studies (animal models)
- Molecular biology techniques
- Omics/bioinformatics support





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Scientific Publication Support

- Scientific publications support for technical writing, publication support, online content updates including:
 - Scientific manuscripts, online content
 - Non-Neoplastic Lesion Atlas
 - Electron Microscopy (Ultrastructural) Atlas
 - Global Toxicologic Pathology training program



Emerging Technology and Needs

- The pathology support contracts have expanded over time, recent needs call for including new technologies and addressing current issues:
 - Increasing mechanistic studies
 - Addressing emerging public health issues, COVID studies being a recent example
 - Increasing need for new capabilities to modernize laboratory animal medicine practices
 - Physiological monitoring; in vivo imaging; behavioral assessments
 - Increasing need for specialized pathology expertise such as the increase value of translation, from animals to humans, and in vitro to in vivo



Charge to the Board of Scientific Counselors

The BSC members are asked to review the concept for overall value and scientific relevance, as well as for fulfilling NIEHS' goal of protecting public health. Consideration should be given to:

- The significance of the goals of the proposed research activity.
- The availability of technology and other resources necessary to achieve those goals.
- The extent to which there are practical scientific or clinical uses for the expected results.
- The adequacy of the proposed methodology.

The DTT seeks approval from the BSC to continue this type of activity using a contract mechanism.



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Questions?