

# Pathology Peer Review Process for the 2-Year Study of Cell Phone Radiofrequency Radiation

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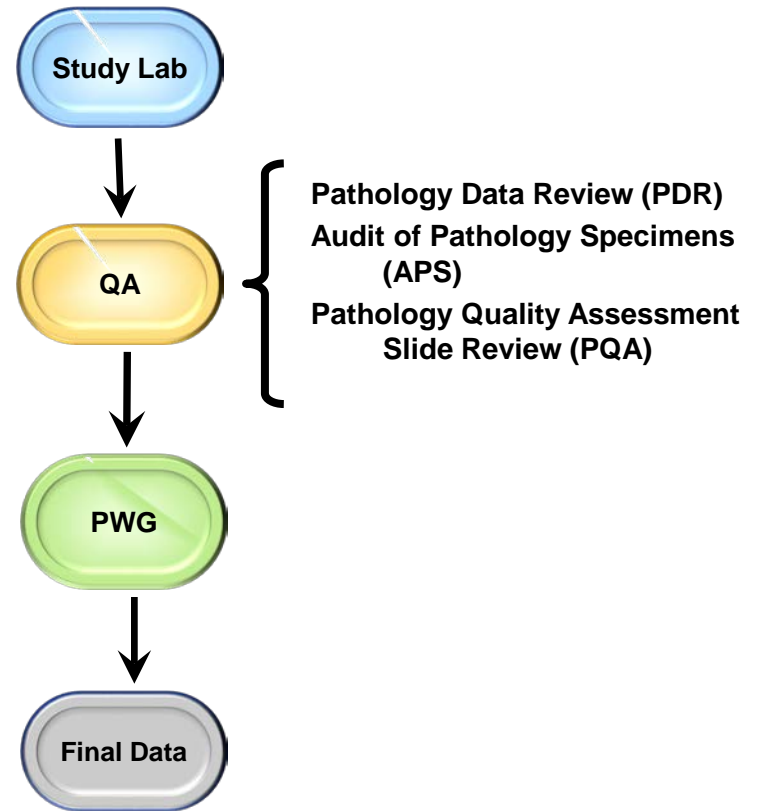




## Study Pathologist

### Pathology Review Process

- Pathology Data Review
- Audit of Pathology Specimens
- Pathology Quality Assessment Slide Review
- Pathology Working Group
- Final Steps





## **Supervises necropsy**

## **Performs histopathological evaluation on all tissues**

- Usually 50 animals/group (chronic study)

## **Mouse cell phone RFR study**

- 90 animals/group (chronic study)
- 15 animals/group (interim study)
- Two modulations
- Shared control group between the two modulations for each sex

## **Prepares pathology report**



## Pathology Data Review (PDR)

**Study lab report and all pathology materials and documentation are sent to the NTP archives**

**Pathology Data Review (PDR) is performed by the Quality Assessment (QA) pathologists**

**QA pathologists are in communication with the NTP pathologist during the pathology review process**



## Pathology Data Review (PDR)

### QA pathologist reviews

- Study lab report (mouse report for cell phone RFR study)
- Study lab report for companion species (rat report for cell phone RFR study)
- Draft statistical analysis tables
- Draft summary incidence tables
- Historical incidences tables

**Draft PDR Report is prepared**



## Pathology Data Review (PDR)

### **Draft PDR report includes**

- Organs selected for complete review
- Organs selected for review of specific lesions
- Selected lesions for review - terminology



## Pathology Data Review (PDR)

**PDR meeting is held to finalize decisions about tissues and lesions to review**

### **Mouse cell phone RFR study**

- Added a complete review of all tissues from 10% of the control and high-dose animals



## Audit of Pathology Specimens (APS)

### **Residual wet tissue is examined to ensure**

- All potential gross lesions were trimmed in
- All organs were properly sampled at necropsy
- Animal identification was correct
- Wet tissue findings matched necropsy records

### **Slides and blocks are examined to ensure**

- Complete and accurate labeling
- Proper sectioning and preparation





## Pathology Quality Assessment Slide Review

**Conducted by one pathologist**

**Mouse cell phone RFR study**

- Two reviewing pathologists
- One reviewed all the males, one reviewed all the females

**Review is read in an open (non-blinded) manner**

- Variability in what is normal
- Allows differentiation of subtle lesions, increasing the sensitivity of the study
- Industry standard\*

\*Neef N, Nikula KJ, Francke-Carroll S, Boone L. Regulatory forum opinion piece: blind reading of histopathology slides in general toxicology studies. *Toxicol Pathol.* 2012 Jun;40(4):697-9. doi: 10.1177/0192623312438737.



## Pathology Quality Assessment Slide Review

**NTP pathologist resolves most differences of opinion between the study pathologist and the QA pathologist**

**Mouse cell phone RFR study – 2 QA pathologists**

**QA pathologist prepares QA report**

**NTP pathologist and QA pathologist decide which slides to take to the Pathology Working Group (PWG)**



## Pathology Working Group (PWG)

### **The PWG carries out a blinded review of:**

- Examples of potentially treatment-related lesions
- Lesions where the incidences differed between the study pathologist and the quality assessment pathologist
- Lesions in which there was a difference of opinion between the study pathologist, the quality assessment pathologist and the NTP pathologist

**Images are shown for lesions with terminology changes only**

### **Mouse cell phone RFR study**

- Two days – one day for females and one day for males



## Final Steps

**Pathology data is updated**

**Independent audit is performed on updated data**

**Final statistical and incidence tables are produced**

**Slides and blocks are available for review in the  
NTP Archives**



# Pathology review process

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**Questions?**