

**Experiment Number:** 20609 - 02  
**Test Type:** 90-DAY  
**Route:** DOSED FEED  
**Species/Strain:** MICE/B6C3F1/NCTR

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**  
(+)-Usnic Acid  
**CAS Number:** 7562-61-0

**Date Report Requested:** 12/03/2020  
**Time Report Requested:** 12:50:16  
**First Dose M/F:** 08/07/08 / 08/07/08  
**Lab:** NCTR

**NTP Study Number:** C20609  
**Lock Date:** 07/01/2013  
**Cage Range:** ALL  
**Date Range:** ALL  
**Reasons For Removal:** ALL  
**Removal Date Range:** ALL  
**Treatment Groups:** Include ALL  
**Study Gender:** Both  
**TDMSE Version:** 3.0.2.3\_002  
**PWG Approval Date:** NONE

Experiment Number: 20609 - 02  
 Test Type: 90-DAY  
 Route: DOSED FEED  
 Species/Strain: MICE/B6C3F1/NCTR

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**  
 (+)-Usnic Acid  
 CAS Number: 7562-61-0

Date Report Requested: 12/03/2020  
 Time Report Requested: 12:50:16  
 First Dose M/F: 08/07/08 / 08/07/08  
 Lab: NCTR

| C57BL/6N XC3H/HEN MTV-NCTR MICE MALE | Control 0 ppm | Usnic 15 ppm | Usnic 30 ppm | Usnic 60 ppm | Usnic 180 ppm | Usnic 360 ppm |
|--------------------------------------|---------------|--------------|--------------|--------------|---------------|---------------|
| <b>Disposition Summary</b>           |               |              |              |              |               |               |
| Animals Initially In Study           | 10            | 10           | 10           | 10           | 10            | 10            |
| Early Deaths                         |               |              |              |              |               |               |
| Survivors                            |               |              |              |              |               |               |
| Terminal Sacrifice                   | 10            | 10           | 10           | 10           | 10            | 10            |
| Animals Examined Microscopically     | 10            |              |              |              |               | 10            |
| <b>ALIMENTARY SYSTEM</b>             |               |              |              |              |               |               |
| Esophagus                            | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Gallbladder                          | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Intestine Large, Cecum               | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Intestine Large, Colon               | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Intestine Large, Rectum              | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Intestine Small, Duodenum            | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Intestine Small, Ileum               | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Intestine Small, Jejunum             | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Liver                                | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Inflammation, Chronic Active         | 1 (10%)       |              |              |              |               |               |
| Tension Lipidosis                    | 1 (10%)       |              |              |              |               | 2 (20%)       |
| Vacuolization Cytoplasmic            | 6 (60%)       |              |              |              |               | 2 (20%)       |
| Pancreas                             | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Salivary Glands                      | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Stomach, Forestomach                 | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Epithelium, Hyperplasia              | 1 (10%)       |              |              |              |               |               |
| Stomach, Glandular                   | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| <b>CARDIOVASCULAR SYSTEM</b>         |               |              |              |              |               |               |
| Blood Vessel                         | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Heart                                | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| <b>ENDOCRINE SYSTEM</b>              |               |              |              |              |               |               |

a - Number of animals examined microscopically at site and number of animals with lesion

Experiment Number: 20609 - 02  
 Test Type: 90-DAY  
 Route: DOSED FEED  
 Species/Strain: MICE/B6C3F1/NCTR

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**  
 (+)-Usnic Acid  
 CAS Number: 7562-61-0

Date Report Requested: 12/03/2020  
 Time Report Requested: 12:50:16  
 First Dose M/F: 08/07/08 / 08/07/08  
 Lab: NCTR

| C57BL/6N XC3H/HEN MTV-NCTR MICE MALE | Control 0 ppm | Usnic 15 ppm | Usnic 30 ppm | Usnic 60 ppm | Usnic 180 ppm | Usnic 360 ppm |
|--------------------------------------|---------------|--------------|--------------|--------------|---------------|---------------|
| Adrenal Cortex                       | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Subcapsular, Hyperplasia             | 1 (10%)       |              |              |              |               | 1 (10%)       |
| Adrenal Medulla                      | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Islets, Pancreatic                   | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Parathyroid Gland                    | (10)          | (0)          | (0)          | (0)          | (0)           | (8)           |
| Pituitary Gland                      | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Thyroid Gland                        | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| <b>GENERAL BODY SYSTEM</b>           |               |              |              |              |               |               |
| None                                 |               |              |              |              |               |               |
| <b>GENITAL SYSTEM</b>                |               |              |              |              |               |               |
| Epididymis                           | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Preputial Gland                      | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Cyst                                 |               |              |              |              |               | 1 (10%)       |
| Prostate                             | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Seminal Vesicle                      | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Testes                               | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| <b>HEMATOPOIETIC SYSTEM</b>          |               |              |              |              |               |               |
| Bone Marrow                          | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Lymph Node, Mandibular               | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Lymph Node, Mesenteric               | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Hyperplasia, Lymphoid                | 3 (30%)       |              |              |              |               | 2 (20%)       |
| Spleen                               | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Hematopoietic Cell Proliferation     |               |              |              |              |               | 2 (20%)       |
| Hyperplasia, Lymphoid                |               |              |              |              |               | 2 (20%)       |
| Thymus                               | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |

a - Number of animals examined microscopically at site and number of animals with lesion

Experiment Number: 20609 - 02  
 Test Type: 90-DAY  
 Route: DOSED FEED  
 Species/Strain: MICE/B6C3F1/NCTR

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**  
 (+)-Usnic Acid  
 CAS Number: 7562-61-0

Date Report Requested: 12/03/2020  
 Time Report Requested: 12:50:16  
 First Dose M/F: 08/07/08 / 08/07/08  
 Lab: NCTR

| C57BL/6N XC3H/HEN MTV-NCTR MICE MALE | Control 0 ppm | Usnic 15 ppm | Usnic 30 ppm | Usnic 60 ppm | Usnic 180 ppm | Usnic 360 ppm |
|--------------------------------------|---------------|--------------|--------------|--------------|---------------|---------------|
| <b>INTEGUMENTARY SYSTEM</b>          |               |              |              |              |               |               |
| Skin                                 | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| <b>MUSCULOSKELETAL SYSTEM</b>        |               |              |              |              |               |               |
| Bone, Femur                          | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| <b>NERVOUS SYSTEM</b>                |               |              |              |              |               |               |
| Brain, Brain Stem                    | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Brain, Cerebellum                    | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Brain, Cerebrum                      | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| <b>RESPIRATORY SYSTEM</b>            |               |              |              |              |               |               |
| Lung                                 | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Nose                                 | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Trachea                              | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| <b>SPECIAL SENSES SYSTEM</b>         |               |              |              |              |               |               |
| Eye                                  | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Harderian Gland                      | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| <b>URINARY SYSTEM</b>                |               |              |              |              |               |               |
| Kidney                               | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Urinary Bladder                      | (10)          | (0)          | (0)          | (0)          | (0)           | (10)          |
| Lumen, Dilatation                    |               |              |              |              |               | 1 (10%)       |

a - Number of animals examined microscopically at site and number of animals with lesion

**Experiment Number:** 20609 - 02  
**Test Type:** 90-DAY  
**Route:** DOSED FEED  
**Species/Strain:** MICE/B6C3F1/NCTR

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**  
(+)-Usnic Acid  
**CAS Number:** 7562-61-0

**Date Report Requested:** 12/03/2020  
**Time Report Requested:** 12:50:16  
**First Dose M/F:** 08/07/08 / 08/07/08  
**Lab:** NCTR

---

C57BL/6N XC3H/HEN MTV-NCTR MICE MALE

Control 0 ppm

Usnic 15 ppm

Usnic 30 ppm

Usnic 60 ppm

Usnic 180 ppm

Usnic 360 ppm

---

\*\*\* END OF MALE \*\*\*

a - Number of animals examined microscopically at site and number of animals with lesion

Experiment Number: 20609 - 02  
 Test Type: 90-DAY  
 Route: DOSED FEED  
 Species/Strain: MICE/B6C3F1/NCTR

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**  
 (+)-Usnic Acid  
 CAS Number: 7562-61-0

Date Report Requested: 12/03/2020  
 Time Report Requested: 12:50:16  
 First Dose M/F: 08/07/08 / 08/07/08  
 Lab: NCTR

| C57BL/6N XC3H/HEN MTV-NCTR MICE FEMALE | Control 0 ppm | Usnic 15 ppm | Usnic 30 ppm | Usnic 60 ppm | Usnic 180 ppm | Usnic 360 ppm |
|--|---------------|--------------|--------------|--------------|---------------|---------------|
|--|---------------|--------------|--------------|--------------|---------------|---------------|

**Disposition Summary**

|                                  |    |    |    |    |    |    |
|----------------------------------|----|----|----|----|----|----|
| Animals Initially In Study       | 10 | 10 | 10 | 10 | 10 | 10 |
| Early Deaths                     |    |    |    |    |    |    |
| Accidentally Killed              |    |    | 1  |    |    |    |
| Survivors                        |    |    |    |    |    |    |
| Terminal Sacrifice               | 10 | 10 | 9  | 10 | 10 | 10 |
| Animals Examined Microscopically | 10 |    | 1  |    |    | 10 |

**ALIMENTARY SYSTEM**

|                              |         |     |          |     |     |         |
|------------------------------|---------|-----|----------|-----|-----|---------|
| Esophagus                    | (10)    | (0) | (1)      | (0) | (0) | (10)    |
| Gallbladder                  | (10)    | (0) | (1)      | (0) | (0) | (10)    |
| Intestine Large, Cecum       | (10)    | (0) | (1)      | (0) | (0) | (10)    |
| Intestine Large, Colon       | (10)    | (0) | (1)      | (0) | (0) | (10)    |
| Intestine Large, Rectum      | (10)    | (0) | (1)      | (0) | (0) | (10)    |
| Intestine Small, Duodenum    | (10)    | (0) | (1)      | (0) | (0) | (10)    |
| Intestine Small, Ileum       | (10)    | (0) | (1)      | (0) | (0) | (10)    |
| Intestine Small, Jejunum     | (10)    | (0) | (1)      | (0) | (0) | (10)    |
| Liver                        | (10)    | (0) | (1)      | (0) | (0) | (10)    |
| Inflammation, Chronic Active |         |     |          |     |     | 2 (20%) |
| Tension Lipidosis            | 1 (10%) |     |          |     |     |         |
| Vacuolization Cytoplasmic    | 4 (40%) |     | 1 (100%) |     |     |         |
| Pancreas                     | (10)    | (0) | (1)      | (0) | (0) | (10)    |
| Salivary Glands              | (10)    | (0) | (1)      | (0) | (0) | (10)    |
| Stomach, Forestomach         | (10)    | (0) | (1)      | (0) | (0) | (10)    |
| Stomach, Glandular           | (10)    | (0) | (1)      | (0) | (0) | (10)    |

**CARDIOVASCULAR SYSTEM**

|              |      |     |     |     |     |      |
|--------------|------|-----|-----|-----|-----|------|
| Blood Vessel | (10) | (0) | (1) | (0) | (0) | (10) |
| Heart        | (10) | (0) | (1) | (0) | (0) | (10) |

**ENDOCRINE SYSTEM**

a - Number of animals examined microscopically at site and number of animals with lesion

Experiment Number: 20609 - 02  
 Test Type: 90-DAY  
 Route: DOSED FEED  
 Species/Strain: MICE/B6C3F1/NCTR

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**  
 (+)-Usnic Acid  
 CAS Number: 7562-61-0

Date Report Requested: 12/03/2020  
 Time Report Requested: 12:50:16  
 First Dose M/F: 08/07/08 / 08/07/08  
 Lab: NCTR

| C57BL/6N XC3H/HEN MTV-NCTR MICE FEMALE | Control 0 ppm | Usnic 15 ppm | Usnic 30 ppm | Usnic 60 ppm | Usnic 180 ppm | Usnic 360 ppm |
|--|---------------|--------------|--------------|--------------|---------------|---------------|
| Adrenal Cortex                         | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Subcapsular, Hyperplasia               | 10 (100%)     |              | 1 (100%)     |              |               | 10 (100%)     |
| Adrenal Medulla                        | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Islets, Pancreatic                     | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Parathyroid Gland                      | (9)           | (0)          | (1)          | (0)          | (0)           | (9)           |
| Pituitary Gland                        | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Thyroid Gland                          | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Ectopic Thymus                         | 1 (10%)       |              |              |              |               |               |
| <b>GENERAL BODY SYSTEM</b>             |               |              |              |              |               |               |
| None                                   |               |              |              |              |               |               |
| <b>GENITAL SYSTEM</b>                  |               |              |              |              |               |               |
| Clitoral Gland                         | (9)           | (0)          | (1)          | (0)          | (0)           | (10)          |
| Ovary                                  | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Uterus                                 | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Endometrium, Hyperplasia               |               |              |              |              |               | 1 (10%)       |
| <b>HEMATOPOIETIC SYSTEM</b>            |               |              |              |              |               |               |
| Bone Marrow                            | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Hyperplasia                            | 1 (10%)       |              |              |              |               |               |
| Lymph Node, Mandibular                 | (10)          | (0)          | (1)          | (0)          | (0)           | (9)           |
| Lymph Node, Mesenteric                 | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Hyperplasia, Lymphoid                  |               |              |              |              |               | 1 (10%)       |
| Spleen                                 | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Hematopoietic Cell Proliferation       | 2 (20%)       |              |              |              |               | 2 (20%)       |
| Hyperplasia, Lymphoid                  | 4 (40%)       |              |              |              |               |               |
| Thymus                                 | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Hyperplasia, Lymphoid                  |               |              |              |              |               | 2 (20%)       |
| Necrosis                               | 1 (10%)       |              |              |              |               |               |

a - Number of animals examined microscopically at site and number of animals with lesion

Experiment Number: 20609 - 02  
 Test Type: 90-DAY  
 Route: DOSED FEED  
 Species/Strain: MICE/B6C3F1/NCTR

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**  
 (+)-Usnic Acid  
 CAS Number: 7562-61-0

Date Report Requested: 12/03/2020  
 Time Report Requested: 12:50:16  
 First Dose M/F: 08/07/08 / 08/07/08  
 Lab: NCTR

| C57BL/6N XC3H/HEN MTV-NCTR MICE FEMALE | Control 0 ppm | Usnic 15 ppm | Usnic 30 ppm | Usnic 60 ppm | Usnic 180 ppm | Usnic 360 ppm |
|--|---------------|--------------|--------------|--------------|---------------|---------------|
| <b>INTEGUMENTARY SYSTEM</b>            |               |              |              |              |               |               |
| Mammary Gland                          | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Skin                                   | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| <b>MUSCULOSKELETAL SYSTEM</b>          |               |              |              |              |               |               |
| Bone                                   | (0)           | (0)          | (1)          | (0)          | (0)           | (0)           |
| Cranium, Fracture                      |               |              | 1 (100%)     |              |               |               |
| Cranium, Hemorrhage                    |               |              | 1 (100%)     |              |               |               |
| Bone, Femur                            | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| <b>NERVOUS SYSTEM</b>                  |               |              |              |              |               |               |
| Brain, Brain Stem                      | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Hemorrhage                             |               |              | 1 (100%)     |              |               |               |
| Brain, Cerebellum                      | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Hemorrhage                             |               |              | 1 (100%)     |              |               |               |
| Brain, Cerebrum                        | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Hemorrhage                             |               |              | 1 (100%)     |              |               |               |
| <b>RESPIRATORY SYSTEM</b>              |               |              |              |              |               |               |
| Lung                                   | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Hemorrhage                             |               |              | 1 (100%)     |              |               |               |
| Nose                                   | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Hemorrhage                             |               |              | 1 (100%)     |              |               |               |
| Trachea                                | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| <b>SPECIAL SENSES SYSTEM</b>           |               |              |              |              |               |               |
| Eye                                    | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Harderian Gland                        | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |

a - Number of animals examined microscopically at site and number of animals with lesion



Experiment Number: 20609 - 02  
Test Type: 90-DAY  
Route: DOSED FEED  
Species/Strain: MICE/B6C3F1/NCTR

P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)  
(+)-Usnic Acid  
CAS Number: 7562-61-0

Date Report Requested: 12/03/2020  
Time Report Requested: 12:50:16  
First Dose M/F: 08/07/08 / 08/07/08  
Lab: NCTR

---

| C57BL/6N XC3H/HEN MTV-NCTR MICE FEMALE | Control 0 ppm | Usnic 15 ppm | Usnic 30 ppm | Usnic 60 ppm | Usnic 180 ppm | Usnic 360 ppm |
|--|---------------|--------------|--------------|--------------|---------------|---------------|
| <hr/>                                  |               |              |              |              |               |               |
| URINARY SYSTEM                         |               |              |              |              |               |               |
| Kidney                                 | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |
| Urinary Bladder                        | (10)          | (0)          | (1)          | (0)          | (0)           | (10)          |

---

\*\*\* END OF REPORT \*\*\*

a - Number of animals examined microscopically at site and number of animals with lesion