

# Operational Guidelines for the Laboratory Animal Biochemical Analysis Service

Article 1 The Operational Guidelines for the Laboratory Animal Biochemical Analysis Service were established to maximize the utility and effectiveness of the device mentioned herein.

Article 2 Details of the device are as follows:

1. Brand and type: IDEXX Chemistry Analyzer (VetTest™)
2. Performance:
  - (1) Dry-slide technology is used to provide results with optimal accuracy.
  - (2) Reference values for 26 test items and 39 specific species and ages are available.
  - (3) Results of an analyte can be obtained within 8 minutes.
3. IDEXX VetLab™ Station—a test data integration system.

Article 3 The device is location in the Laboratory Animal Center on the first floor of the Back Building of the United Medical Building

Article 4 The main service targets of the device are researchers from Taipei Medical University and its three associated hospitals.

Article 5 Service items of this device consist of 25 types of dry-slide CLIPs:

| Biochemical item | Acronym | Full name                  |
|------------------|---------|----------------------------|
| 白蛋白              | ALB     | Albumin                    |
| 鹼磷酶              | ALPK    | Alkaline Phosphatase       |
| 丙胺酸轉胺酶           | ALT     | Alanine Aminotransferase   |
| 胰澱粉酶             | AMYL    | Amylase                    |
| 天門冬酸轉胺酶          | AST     | Aspartate Aminotransferase |
| 血中尿素氮            | BUN     | Blood Urea Nitrogen        |
| 鈣                | Ca      | Calicum                    |
| 膽固醇              | CHOL    | Cholesterol                |
| 肌酸激酵素            | CK      | Creatine Kinase            |
| 肌酸酐              | CREA    | Creatinine                 |
| 氯離子              | Cl      | Chloride                   |
| 加瑪麩氨肌轉換酶         | GGT     | Gamma-glutamyltransferase  |

|       |      |                         |
|-------|------|-------------------------|
| 血糖    | GLU  | Glucose                 |
| 鉀離子   | K    | Potassium               |
| 乳酸    | LAC  | Lactate                 |
| 乳酸脫氫酶 | LDH  | L-lactate dehydrogenase |
| 胰脂肪酶  | LIPA | Lipase                  |
| 鎂離子   | Mg   | Magnesium               |
| 鈉離子   | Na   | Sodium                  |
| 氨     | NH3  | Ammonia                 |
| 磷離子   | PHOS | Inorganic Phosphate     |
| 總膽紅素  | TBIL | Total Bilirubin         |
| 總蛋白   | TP   | Total Protein           |
| 三酸甘油酯 | TRIG | Triglyceride            |
| 尿酸    | URIC | uric acid               |

#### Article 6 **Reservation method:**

1. Please register use of the device in the reservation system of Core Facility Center or Laboratory Animal Center 1–10 days prior to the prescheduled service day. The technician of Laboratory Animal Center can decide whether to provide services according to actual reservation situations.
2. Technical service time: Monday to Friday, 09:00 a.m. to 05:00 p.m.

#### Article 7 The guidelines for using the device are as follows:

1. **Analysis reports of the service are provided in hard copies.**
2. The IDEXX VetTest™ biochemical analyzer uses 25 types of dry-slide CLIPs, which are disposable after a single use. A box of 12 CLIPs is required for each operation. The Laboratory Animal Center neither safeguards the remaining unused CLIPs for users nor accepts CLIPs prepared by them to control the accuracy of the analysis results. Researchers must consider the sample amount they plan to analyze and make necessary adjustment.
3. The device can accept serum samples (without anticoagulants) or plasma samples (those using the anticoagulant ethylenediaminetetraacetic acid shall be rejected).
4. In principle, the samples should not be hemolyzed. Hemolyzed samples severely affect the testing of AST, ALT, LDH, and T-BIL and partially affect other items. Researchers should consider the effect of

hemolysis.

5. Fasting of the animal can affect the test results of certain items (i.e., blood glucose, lipid, and inorganic phosphor), which researchers should consider. If fasting of the animals is required, **rats can fast for 15–20 hours and mice should not fast for longer than 4 hours**; water fasting should not be implemented.
6. **Required sample calculations:**
  - (1) The required sample volume for analyzing the first item is 40  $\mu\text{L}$ ; increments of 10  $\mu\text{L}$  are required for each item added for analysis.
  - (2) Limited by the size of the device, up to 12 analysis items can be accepted in one analysis. If a 13<sup>th</sup> item must be analyzed, a second analysis should be conducted and the required sample volume recalculated.
  - (3) For example, when 13 items are to be analyzed, the required sample volume for the 1<sup>st</sup> to 12<sup>th</sup> items is 150  $\mu\text{L}$  in the first analysis. An additional 40  $\mu\text{L}$  is required for the 13<sup>th</sup> item in the second analysis. Therefore, the analysis of 13 items requires a total sample volume of 190  $\mu\text{L}$ .
7. If serum or plasma samples cannot be immediately sent for testing after collection, they should be preserved at a low temperature. A general recommendation is that samples can be stored for approximately 1 month at  $-80^{\circ}\text{C}$  and approximately 10 days at  $-20^{\circ}\text{C}$ . Storage at  $4^{\circ}\text{C}$  for a long time may affect the test values of enzymes.

Article 8 The charging standard of this device is determined to ensure optimal service quality and extend the effective service duration of the device. Upon resolution of the Meeting of the Office of Research and Development, individuals or units that use the device must pay for necessary consumables, maintenance, and operator services.

1. Charging standard: NT\$1000/box for an analytical item, which can be used for the analysis of 12 samples.
2. Payment method: The Laboratory Animal Center calculates technical service uses and relevant fees every month and sends payment notices to users. Users must pay and verify the technical service fees within 3 months after the payment notice is issued. Users can visit the Cashier Section of Taipei Medical University to pay the fees, or have their expenditures charged from research project funds or school budgets.

Article 9 Device contact person:

Laboratory Animal Center technician: Wu, Wen-Chi, extension: 22464

Article 10 These Guidelines shall be implemented upon approval by an Office Meeting of the Office of Research and Development; the same procedure applies to any amendment.