# UNIVERSITÀ DEGLI STUDI DI MILANO

**CONCORSO PUBBLICO, PER TITOLI ED ESAMI, A N. 1 UNITÀ DI TECNOLOGO DI SECONDO LIVELLO, CON RAPPORTO DI LAVORO SUBORDINATO A TEMPO DETERMINATO PRESSO L'UNIVERSITÀ DEGLI STUDI DI MILANO - DIPARTIMENTO DI SCIENZE FARMACOLOGICHE E BIOMOLECOLARI - CODICE 22486**

La Commissione giudicatrice della selezione, nominata con Determina Direttoriale n. 14255 del 10/09/2024, composta da:

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| Prof.ssa Graziella Messina | Presidente |
| Prof.ssa Elena Battaglioli | Componente |
| Dott. Giuliano Grignaschi | Componente |
| Sig.ra Tiziana Patrizia Bandera | Segretaria |

comunica i quesiti relativi alla prova orale:

## Gruppo di quesiti n. 1

1. Descrivere le caratteristiche dei principali software per programmazione di esperimenti di comportamento in modelli murini (es. Anymaze, Ethovision, DeepLabCut).

2. An international survey was conducted regarding species used for research, methods of euthanasia, health monitoring, and biosecurity in fish laboratories. A total of 145 facilities from 23 countries contributed. Over 80 different species were reported to be used for research, of which zebrafish (*Danio rerio*) was the most common by far. Anesthetic overdose was the preferred method for euthanasia for adults, fry, and larvae not capable of independent feeding. For all developmental stages, the most popular anesthetic compound was tricaine. Around half of the respondents did not perform a completion method to ensure death. One-quarter of the responding facilities did not have a health monitoring system in place. Only a small fraction reported quarantine routines to ensure reliable biological barriers. There was little consensus amongst facilities in how to perform biosecurity measures.

## Gruppo di quesiti n. 2

1. Descrivere la corretta applicazione degli human end points nei progetti che prevedono l'utilizzo di modelli animali.

2. An international survey was conducted regarding species used for research, methods of euthanasia, health monitoring, and biosecurity in fish laboratories. A total of 145 facilities from 23 countries contributed. Collectively, over 80 different species (or groups of species) were reported to be used for research, of which zebrafish (*Danio rerio*) was the most common by far. About half of the participating laboratories used multiple species. Anesthetic overdose was the preferred method for euthanasia for adult, fry (capable of independent feeding), and larval (not capable of independent feeding) fish. For all developmental stages, the most popular anesthetic compound was tricaine (MS-222), a substance associated with distress and aversion in several species. Moreover, around half of the respondents did not perform a completion method to ensure death. One-quarter of the responding facilities did not have a health monitoring system in place. While most respondents had some form of quarantine process for imported fish, only a small fraction reported quarantine routines that ensure reliable biological barriers. Furthermore, less than one in five screened fish for pathogens while in quarantine. In sum, there was little consensus amongst facilities in how to perform biosecurity measures. Regarding euthanasia, health monitoring, and biosecurity processes, there is a need for updated and universal guidelines and for many laboratories to adjust their practices.

Milano, 10 ottobre 2024

La Commissione

Prof.ssa Graziella Messina Presidente

Prof.ssa Elena Battaglioli Componente

Dott. Giuliano Grignaschi Componente

Sig.ra Tiziana Patrizia Bandera Segretaria