November 8, 2022

IFHA POSITION STATEMENT ON GENE DOPING

The IFHA is committed to advancing the integrity of thoroughbred horse racing and breeding, including through promoting stringent anti-doping and medication control policies.

Doping, through the use of prohibited substances, in thoroughbred horse racing is strictly prohibited. This is because doping threatens the level playing field and undermines the integrity of the sport, which directly affects the confidence of racing's customers and the broader public. It also poses a threat to the safety and welfare of equine and human athletes. Among other things, doping has the potential to mask genetic issues in the thoroughbred breed and, through its impact on the integrity of races, ultimately impacts selection for thoroughbred breeding.

Doping in thoroughbred horse racing is generally understood as the use of medications, drugs or other substances that are prohibited, whether that be prohibited from use entirely, or only at certain times such as on race day. Examples of prohibited substances include chemicals, pharmaceuticals, peptides and proteins.

While conventional forms of doping continue to present significant integrity and welfare threats, gene doping is widely considered as the next generation doping threat to horse racing and human athletes alike.

In thoroughbred horse racing and breeding, the term 'gene doping' is commonly used to describe the use of gene editing, genome editing, or unauthorised genetic therapy that may alter genome sequences and/or gene expression by any mechanism. Gene doping is a general term covering a broad range of conduct that is not permitted in racing or breeding at any time, which includes (but is not limited to) the use of gene transfer and gene silencing technologies.

To help combat the threats presented by gene doping, the IFHA has developed a model regulatory framework for its prohibition and control. Under the IFHA's International Agreement on Breeding, Racing & Wagering, the following is specifically prohibited (see Article 6A – clause 10 and Article 6B for the provisions in full):

a. genome editing, which involves the insertion, deletion and/or replacement of DNA in the genome of a horse;
b. gene editing, which involves the insertion, deletion and/or replacement of DNA *at a specific site* in the genome of a horse;
c. genetic therapy (including the use of polymers of nucleic acid, nucleic acid analogues, genetically modified cells and agents which are capable of affecting and/or

manipulating gene expression), except as specifically permitted by racing authorities in very limited circumstances;

d. agents that are capable of affecting and/or manipulating gene expression (including agents with the capacity to alter genome sequences and/or certain regulation of gene expression).

While gene doping presents similar integrity and welfare threats to the thoroughbred industry as conventional doping, it also confers additional risks, particularly when applied to the breeding of horses.

In circumstances where there are currently no therapeutic uses for gene editing or genome editing in horses, their use or administration is prohibited at all times. Although gene editing and genome editing can introduce a precise change within a gene, they are also known to cause 'off-target' effects – that is, unwanted changes to regions of the genome that were not targeted – therefore posing a significant welfare risk to horses. Further, as gene editing and genome editing (both of which have become popular as scientific research methods) can create genetically modified animals, without the appropriate regulatory approvals these practices constitute a criminal offence in many countries.

In addition, given that gene editing or genome editing of an embryo can modify the heritable genome, any horse discovered to have been the subject of such practice may be excluded or removed from the relevant thoroughbred stud book (as set out in Article 12 of the IABRW). This could also have serious repercussions for the thoroughbred status of such horse's progeny.

At the date of this document, there are no genetic therapy products licensed for use in horses. In most cases, the use of any unlicensed product is a contravention of the rules of racing and stud books because it can constitute an equine welfare risk. If a genetic therapy which is not capable of modifying a horse's heritable genome is developed and approved by regulators as a suitable treatment for horses, its use under specific conditions (which could include the imposition of a 'not to race' stand down period following treatment) may be allowed with express permission from the relevant racing authority. However, until such time as such a genetic therapy is properly assessed for safety and efficacy and all necessary regulatory approvals have been obtained, the use of these therapies in thoroughbred racehorses is banned.