

# **Annex I**

## **PROHIBITED SUBSTANCES**

All substances in the categories below shall be strictly prohibited unless otherwise provided in accordance with ARCI-011-015 or ARCI-025-015. Any reference to substances in this section does not alter the requirements for testing concentrations in race day samples.

Nothing in this list shall alter the requirements of post-race testing.

### **S0. NON-APPROVED SUBSTANCES**

Any pharmacologic substance that is not approved by any governmental regulatory health authority for human or veterinary use within the jurisdiction is prohibited. This prohibition includes drugs under pre-clinical or clinical development, discontinued drugs, and designer drugs (a synthetic analog of a drug that has been altered in a manner that may reduce its detection); but does not include vitamins, herbs and supplements for nutritional purposes that do not contain any other prohibited substance, or the administration of a substance with the prior approval of the commission in a clinical trial for which an FDA or similar exemption has been obtained.

### **S1. ANABOLIC AGENTS**

Anabolic agents are prohibited.

#### **1. Anabolic Androgenic Steroids (AAS)**

1.1. Exogenous AAS, including:

1-androstenediol (5 $\alpha$ -androst-1-ene-3 $\beta$ ,17 $\beta$ -diol ); 1-androstenedione (5 $\alpha$ - androst-1-ene-3,17-dione); bolandiol (estr-4-ene-3 $\beta$ ,17 $\beta$ -diol ); bolasterone; boldenone; boldione (androsta-1,4-diene-3,17-dione);

calusterone; clostebol; danazol ([1,2]oxazolo[4',5':2,3]pregna-4-en-20-yn-17 $\alpha$ -ol); dehydrochlormethyltestosterone (4-chloro-17 $\beta$ -hydroxy-17 $\alpha$ -methylandrosta-1,4-dien-3-one); desoxymethyltestosterone (17 $\alpha$ -methyl-5 $\alpha$ -androst-2-en-17 $\beta$ -ol); drostanolone; ethylestrenol (19-norpregna-4-en-17 $\alpha$ -ol); fluoxymesterone; formebolone; furazabol (17 $\alpha$ -methyl[1,2,5]oxadiazolo[3',4':2,3]-5 $\alpha$ -androst-17 $\beta$ -ol); gestrinone; 4-hydroxytestosterone (4,17 $\beta$ -dihydroxyandrost-4-en-3-one); mestanolone; mesterolone; metandienone (17 $\beta$ -hydroxy-17 $\alpha$ -methylandrosta-1,4-dien-3-one); metenolone; methandriol; methasterone (17 $\beta$ -hydroxy-2 $\alpha$ ,17 $\alpha$ -dimethyl-5 $\alpha$ -androst-3-one); methyldienolone (17 $\beta$ -hydroxy-17 $\alpha$ -methylestra-4,9-dien-3-one); methyl-1-testosterone (17 $\beta$ -hydroxy-17 $\alpha$ -methyl-5 $\alpha$ -androst-1-en-3-one); methylnortestosterone (17 $\beta$ -hydroxy-17 $\alpha$ -methylestr-4-en-3-one); methyltestosterone; metribolone (methyltrienolone, 17 $\beta$ -hydroxy-17 $\alpha$ -methylestra-4,9,11-trien-3-one); mibolerone; nandrolone; 19-norandrostenedione (estr-4-ene-3,17-dione); norboletone; norclostebol; norethandrolone; oxabolone; oxandrolone; oxymesterone; oxymetholone; prostanazol (17 $\beta$ -[(tetrahydropyran-2-yl)oxy]-1'H-pyrazolo[3,4:2,3]-5 $\alpha$ -androstane); quinbolone; stanozolol; stenbolone; 1-testosterone (17 $\beta$ -hydroxy-5 $\alpha$ -androst-1-en-3-one); tetrahydrogestrinone (17-hydroxy-18 $\alpha$ -homo-19-nor-17 $\alpha$ -pregna-4,9,11-trien-3-one); trenbolone (17 $\beta$ -hydroxyestr-4,9,11-trien-3-one); and other substances with a similar chemical structure or similar biological effect(s).

1.2. Endogenous AAS or their synthetic esters when administered exogenously:

androstenediol (androst-5-ene-3 $\beta$ ,17 $\beta$ -diol); androstenedione (androst-4-ene-3,17-dione); dihydrotestosterone (17 $\beta$ -hydroxy-5 $\alpha$ -androst-3-one); prasterone (dehydroepiandrosterone, DHEA, 3 $\beta$ -hydroxyandrost-5-en-17-one); testosterone;

and their metabolites and isomers, including but not limited to:

5 $\alpha$ -androstane-3 $\alpha$ ,17 $\alpha$ -diol; 5 $\alpha$ -androstane-3 $\alpha$ ,17 $\beta$ -diol; 5 $\alpha$ -androstane-3 $\beta$ ,17 $\alpha$ -diol; 5 $\alpha$ -androstane-3 $\beta$ ,17 $\beta$ -diol; 5 $\beta$ -

androstane-3  $\alpha$ , 17 $\beta$ -diol, androst-4-ene-3 $\alpha$ ,17 $\alpha$ -diol;  
androst-4-ene-3 $\alpha$ ,17 $\beta$ -diol; androst-4-ene-3 $\beta$ ,17 $\alpha$ -diol;  
androst-5-ene-3 $\alpha$ ,17 $\alpha$ -diol; androst-5-ene-3 $\alpha$ ,17 $\beta$ -diol;  
androst-5-ene-3 $\beta$ ,17 $\alpha$ -diol; 4-androstenediol (androst-4-  
ene-3 $\beta$ ,17 $\beta$ -diol); 5-androstenedione (androst-5-ene-3,17-  
dione); androsterone (3  $\beta$ -hydroxy-5  $\alpha$  - androstan-17-one);  
epi-dihydrotestosterone; epitestosterone; etiocholanolone;  
7 $\alpha$ -hydroxy-DHEA ; 7 $\beta$ -hydroxy-DHEA; 7-keto-DHEA; 19-  
norandrosterone; 19-noretiocholanolone.

**2. Other Anabolic Agents, including but not limited to:**

Clenbuterol, selective androgen receptor modulators (SARMs e.g., andarine and ostarine), ractopamine, tibolone, zeranol, zilpaterol.

**S2. PEPTIDE HORMONES, GROWTH FACTORS AND RELATED SUBSTANCES**

The following substances, and other substances with similar chemical structure or similar biological effect(s), are prohibited:

8. Erythropoietin-Receptor agonists:

1.3 Erythropoiesis-Stimulating Agents (ESAs) including, e.g., darbepoetin (dEPO); erythropoietins (EPO); EPO-Fc; EPO-mimetic peptides (EMP), e.g., CNTO 530 and peginesatide; and methoxypolyethylene glycol-epoetin beta (CERA); and

1.4 Non-erythropoietic EPO-Receptor agonists, e.g., ARA-290, asialo EPO and carbamylated EPO;

9. Hypoxia-inducible factor (HIF) stabilizers, e.g., cobalt (when found in excess of regulatory authority limits) and roxadustat (FG-4592); and HIF activators, (e.g., argon, xenon);

10. Chorionic Gonadotropin (CG) and Luteinizing Hormone (LH) and their releasing factors, in males;

11. Corticotrophins and their releasing factors;

12. Growth Hormone (GH) and its releasing factors including Growth Hormone Releasing Hormone (GHRH) and its analogues, e.g., CJC-1295, sermorelin and tesamorelin; Growth Hormone Secretagogues (GHS), e.g., ghrelin and ghrelin mimetics, e.g.,

anamorelin and ipamorelin; and GH-Releasing Peptides (GHRPs), e.g., alexamorelin, GHRP-6, hexarelin and pralmorelin (GHRP-2);

13. Venoms and toxins including but not limited to venoms and toxins from sources such as snails, snakes, frogs, and bees as well as their synthetic analogues such as ziconotide.

14. In addition, the following growth factors are prohibited:

Fibroblast Growth Factors (FGFs), Hepatocyte Growth Factor (HGF), Insulin-like Growth Factor-1 (IGF-1) and its analogues, Mechano Growth Factors (MGFs), Platelet-Derived Growth Factor (PDGF), Vascular-Endothelial Growth Factor (VEGF) and any other growth factor affecting muscle, tendon or ligament protein synthesis/degradation, vascularization, energy utilization, regenerative capacity or fiber type switching.

### **S3. BETA-2 AGONISTS**

All beta-2 agonists, including all optical isomers (i.e. *d*- and *l*-) where relevant, are prohibited.

### **S4. HORMONE AND METABOLIC MODULATORS**

The following are prohibited:

1. Aromatase inhibitors, including but not limited to: aminoglutethimide, anastrozole, androsta-1,4,6-triene-3,17-dione (androstatrienedione), 4-androstene-3,6,17 trione (6-oxo), exemestane, formestane, letrozole, testolactone;
2. Selective estrogen receptor modulators (SERMs), including but not limited to: raloxifene, tamoxifen, toremifene;
3. Other anti-estrogenic substances, including but not limited to: clomiphene, cyclofenil, fulvestrant;
4. Agents modifying myostatin function(s), including but not limited to: myostatin inhibitors;
5. Metabolic modulators:

- 5.1. Activators of the AMP-activated protein kinase (AMPK), e.g., AICAR, and Peroxisome Proliferator Activated Receptor  $\delta$  (PPAR $\delta$ ) agonists (e.g., GW 1516);
- 5.2 Insulins;
- 5.3 Trimetazidine; and
- 5.4. Thyroxine and thyroid modulators/hormones, including but not limited to those containing T4 (tetraiodothyronine/thyroxine), T3 (triiodothyronine), or combinations thereof.

## **S5. DIURETICS AND OTHER MASKING AGENTS**

The following diuretics and masking agents are prohibited, as are other substances with similar chemical structure or similar biological effect(s): acetazolamide, amiloride, bumetanide, canrenone, chlorthalidone, desmopressin, etacrynic acid, indapamide, metolazone, plasma expanders (e.g. glycerol; intravenous administration of albumin, dextran, hydroxyethyl starch and mannitol), probenecid, spironolactone, thiazides (e.g. bendroflumethiazide, chlorothiazide, hydrochlorothiazide), torsemide, triamterene, and vasopressin receptor antagonists or vaptans (e.g., tolvaptan).

Furosemide and trichlormethiazide may be administered only in a manner permitted by other rules of the commission.

## **PROHIBITED METHODS**

### **M1, MANIPULATION OF BLOOD AND BLOOD COMPONENTS**

The following are prohibited:

1. The administration or reintroduction of any quantity of autologous, allogenic (homologous) or heterologous blood or red blood cell products of any origin into the circulatory system.
2. Artificially enhancing the uptake, transport or delivery of oxygen, including, but not limited to, perfluorochemicals, efaproxiral (RSR13) and modified hemoglobin products (e.g. hemoglobin-based blood substitutes, microencapsulated hemoglobin products), excluding supplemental oxygen.
3. Any form of intravascular manipulation of the blood or blood components by physical or chemical means.

### **M2, CHEMICAL AND PHYSICAL MANIPULATION**

Tampering, or attempting to tamper, in order to alter the integrity and validity of samples collected by the commission, is prohibited. These methods include but are not limited to urine substitution or adulteration (e.g., proteases).

### **M3, GENE DOPING**

The following, with the potential to enhance sport performance, are prohibited:

2. The transfer of polymers of nucleic acids or nucleic acid analogues.
2. The use of normal or genetically modified hematopoietic cells.