



STATUS DECISION OF CONTROLLED AND NON-CONTROLLED SUBSTANCE(S)

- Substance: I - 1alpha-Methyl-5alpha-androstan-3alpha-ol-17-one
II - 5beta-Androst-1-en-17beta-ol-3-one
III - 2alpha-methyl-5alpha-androstan-3alpha-ol-17-one
IV - 16beta-hydroxyfurazabol
V - Epimetendiol
VI - 13beta,17alpha-Diethyl-5alpha-gonane-3alpha,17beta-diol

Based on the current information available to the Office of Controlled Substances, it appears that the above substance is:

Controlled [checked]
Not Controlled [unchecked]

under the schedules of the Controlled Drugs and Substances Act (CDSA) for the following reason(s):

- The substances are metabolites of anabolic steroids and therefore are included under item 23 of Schedule IV to the CDSA.

Prepared by: Evelyn Soo Date: Dec 8th 2010

Verified by: Marianne Tang Date:

Approved by: DIRECTOR, OFFICE OF CONTROLLED SUBSTANCES Date:

This status was requested by: Tanya Arcand

## Drug Status Report

- Drug:** I - 1alpha-Methyl-5alpha-androstan-3alpha-ol-17-one  
II - 5beta-Androst-1-en-17beta-ol-3-one  
III - 2alpha-Methyl-5alpha-androstan-3alpha-ol-17-one  
IV - 16beta-Hydroxyfurazabol  
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VI - 13beta,17alpha-Diethyl-5alpha-gonane-3alpha,17beta-diol

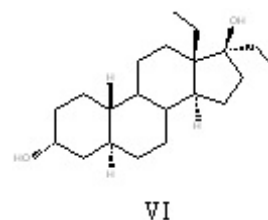
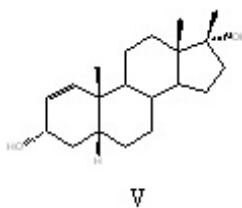
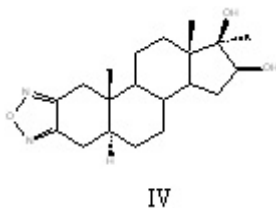
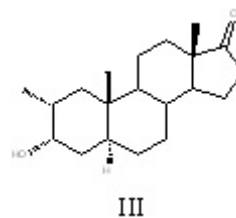
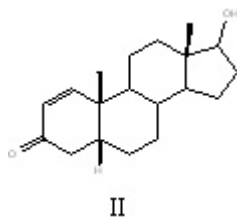
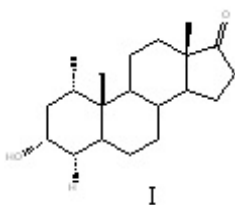
### Drug Name Status:

- I - 1alpha-Methyl-5alpha-androstan-3alpha-ol-17-one  
II - 5beta-Androst-1-en-17beta-ol-3-one  
III - 2alpha-Methyl-5alpha-androstan-3alpha-ol-17-one  
IV - 16beta-Hydroxyfurazabol  
V - Epimetendiol  
VI - 13beta,17alpha-Diethyl-5alpha-gonane-3alpha,17beta-diol are the common names

### Chemical Name:

- I - 1alpha-Methyl-5alpha-androstan-3alpha-ol-17-one  
II - 5beta-Androst-1-en-17beta-ol-3-one  
III - 2alpha-Methyl-5alpha-androstan-3alpha-ol-17-one  
IV - 16beta,17beta-dihydroxy-alpha-androstano[2,3-c] furazan  
V - 17beta-Methyl-5beta-androst-1-en-3alpha,17alpha-diol  
VI - 13beta,17alpha-Diethyl-5alpha-gonane-3alpha,17beta-diol

### Chemical structure:



**Molecular Formula:** I-  $C_{20}H_{32}O_2$ ; II- $C_{19}H_{28}O_2$ ; III- $C_{20}H_{32}O_2$ ; IV- $C_{20}H_{30}N_2O_3$ ; V- $C_{20}H_{32}O_2$ ; VI- $C_{21}H_{36}O_2$

**Pharmacological class / Application:** Steroid metabolites

**CAS-RN:** I- 3398-67-2; II-10529-96-1; III-6961-54-2; IV-36455-74-0; V-132830-78-5; VI-NONE

**International status:**

US: 1alpha-Methyl-5alpha-androstan-3alpha-ol-17-one, 5beta-androst-1-en-17beta-ol-3-one, 2alpha-methyl-5alpha-androstan-3alpha-ol-17- one, 16beta-hydroxyfurazabol, epimetendiol and 13beta,17alpha-Diethyl-5alpha-gonane-3alpha,17beta-diol are not listed specifically in the US *Controlled Substances Act*.

United Nations: The substances are not listed specifically on the Yellow List - List of Narcotic Drugs under International Control nor the Green List - List of Psychotropic Substances under International Control.

Canadian Status: 1alpha-Methyl-5alpha-androstan-3alpha-ol-17-one, 5beta-androst-1-en-17beta-ol-3-one, 2alpha-methyl-5alpha-androstan-3alpha-ol-17- one, 16beta-hydroxyfurazabol, epimetendiol and 13beta,17alpha-Diethyl-5alpha-gonane-3alpha,17beta-diol are not listed specifically in the CDSA. The substances are all metabolites of anabolic steroids listed under the heading "Anabolic steroids and their derivatives including" of item 23 of Schedule IV to the CDSA. Specifically, they are the metabolites of mesterolone (sub-item 21)<sup>1</sup>, boldenone (sub-item 7)<sup>2</sup>, drostanolone (sub-item 11)<sup>3</sup>, furazabol (sub-item 18)<sup>4</sup>, metandienone (sub-item 22)<sup>5</sup> and

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<sup>1</sup>Ho, EN, et al. (2007) Metabolic studies of mesterolone in horses, *Analytica Chimica Acta*, **596**:149-155.

<sup>2</sup>Van Poucke, C. et al. (2008) Fractionation of free and conjugated steroids for the detection of boldenone metabolites in calf urine with ultra-performance liquid chromatography/tandem mass spectrometry, *Rapid Comm. Mass Spectrom.* **22**:2324-2332.

<sup>3</sup>Schanter, W and Donike, M. (1993) Metabolism of anabolic steroids in man: synthesis and use of reference standards for identification of anabolic steroid metabolites, *Analytical Chimica Acta*, **275**:23-48.

<sup>4</sup>Galesio, M. et al. (2010) Improved ultrasonic-based sample treatment for the screening of anabolic steroids by gas chromatography-mass spectrometry, *Rapid Comm. Mass Spectrom.* **24**:2375-2385.

<sup>5</sup>Virus, ED. et al. (2008) Introduction to HPLC/orbitrap mass spectrometry as screening method for doping control, *J. Mass Spectrometr.* **43**:949-957.

norboletone (subitem 29)<sup>6</sup> respectively, and as such are included under item 23 of Schedule IV as derivatives of the corresponding anabolic steroids.

**Recommendation:** 1alpha-Methyl-5alpha-androstan-3alpha-ol-17-one, 5beta-androst-1-en-17beta-ol-3-one, 2alpha-methyl-5alpha-androstan-3alpha-ol-17- one, 16beta-hydroxyfurazabol, epimetendiol and 13beta,17alpha-Diethyl-5alpha-gonane-3alpha,17beta-diol are included under item 23 of Schedule IV to the CDSA and are controlled substances.

**Date:** 8 December 2010

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<sup>6</sup>Goergakopoulos, CG. et et al. (2007) Preventive doping control analysis; liuqid and gas chromatography time-of-flight mass sepectrometry for detection of designer steroids, Rapid Comm. Mass Spectrom. **21**:2439-46.