Drug Status Report

Drug: HEXAGHEN Pharmadynamic IGF-1 Optimizer

Drug Status Name: HEXAGHEN IGF-1 Optimizer is the brand name.

The product is marketed for bodybuilding purposes and is claimed to consist of the following:

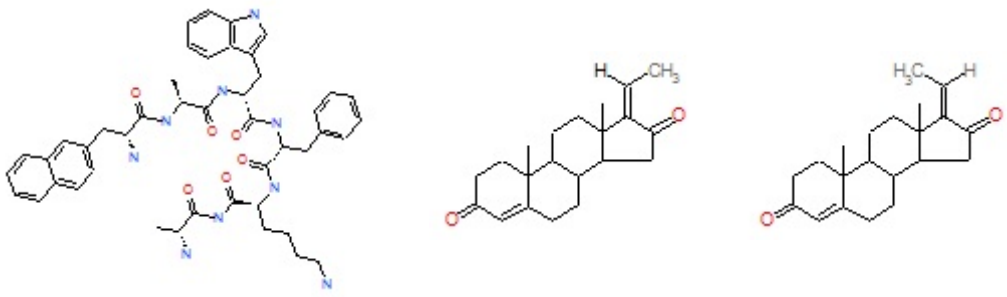
I - GHRP-2 Hexapeptide acetate
II - Cis-4,17(20)-Pregnadiene-3,16-dione
III - Trans-4,17(20)-Pregnadiene-3,16-dione

Chemical Name:
I - L-lysinamide, D-alanyl-3-(2-naphthalenyl)-D-alanyl-L-alanyl-L-tryptophyl-D-phenylalanyl-
II -Pregna-4,17(20)-diene-3,16-dione, (17Z)
III - Pregna-4,17(20)-diene-3,16-dione, (17E)

Other Names:

I - KP 102; Pralmoreline
II - Z-Gugglusterone; Z-4,17(20)-*cis*-Pregnadiene-3,16-dione
III - E-Gugglsterone; E-4,17(20)-*trans*-Pregnadiene-3,16-dione

Chemical Structure:



I **II** **III**

Molecular Formula: I - $C_{45}H_{55}N_9O_6$; **II** - $C_{21}H_{28}O_2$; **III** - $C_{21}H_{28}O_2$

Pharmacological class / Application: I - Growth hormone regulator; **II**, **III** - steroid

International status:

US: The substances are not listed on the schedules to the CSA and are not mentioned on the DEA website.

United Nations: The substance is not listed on the Yellow List - List of Narcotic Drugs under International Control. The drug is not listed on the Green List - List of Psychotropic Substances under International Control.

Canadian Status: GHRP-2 has been implicated in the feedforward control of Growth Hormone[1] and is not listed specifically on the CSDA nor similar to any of the substances listed in the Schedules to the CDSA.

4,17(20)-pregnadiene-3,16-dione is derived from the plant *Commiphora mukul* and exists as its Z- and E-isomers. 4,17(20)-pregnadiene-3,16-dione has been shown to display marked cholesterol- and lipid-lowering activity and has been reported to be efficacious treatment for osteoarthritis and bone resportion[2,3]. 4,17(20)-pregnadiene-3,16-dione has not been reported in the literature to display anabolic activity and is not a derivative of an anabolic steroid. The substance therefore is not included under Item 23 "Anabolic steroids and their derivatives" of Schedule IV to the CDSA.

Recommendation: HEXAGHEN Pharmadynamic IGF-1 Optimizer is not included in the Schedules to the CDSA and is not a controlled substance.

March 17th, 2010

---

[1]Veldhuis JD *et al*. (2005) Testosterone supplementation in healthy older men drives GH and IGF-I secretion without potentiating peptidy secretagogue efficacy, Eur. J. Endrocrinol. **153**:577-586.

[2]Ichikawa, H and Aggarwal, BB. (2006) Guggulsterone inhibits osteoclastogenesis induced by receptor activator of nuclear factor-kB ligand and by tumor cells by suppressing nuclear factor-kB activation, Clinical Cancer Res. **12**:662-668.

[3]Nagarajan, M et al. (2001) Simultaneous determination of E- and Z-guggulsterones in dietary supplements containing Commiphora mukul extract (Guggulipid) by liquid chromatography, J. AOAC Int. **84**:24-28.