

- **Note that the opinions expressed within the abstracts and presentations are those of the authors/presenters alone and do not necessarily reflect the opinions of WADA.**

**DHEA is an anabolic
steroid like
testosterone and THG**

**Global gene
expression analysis**

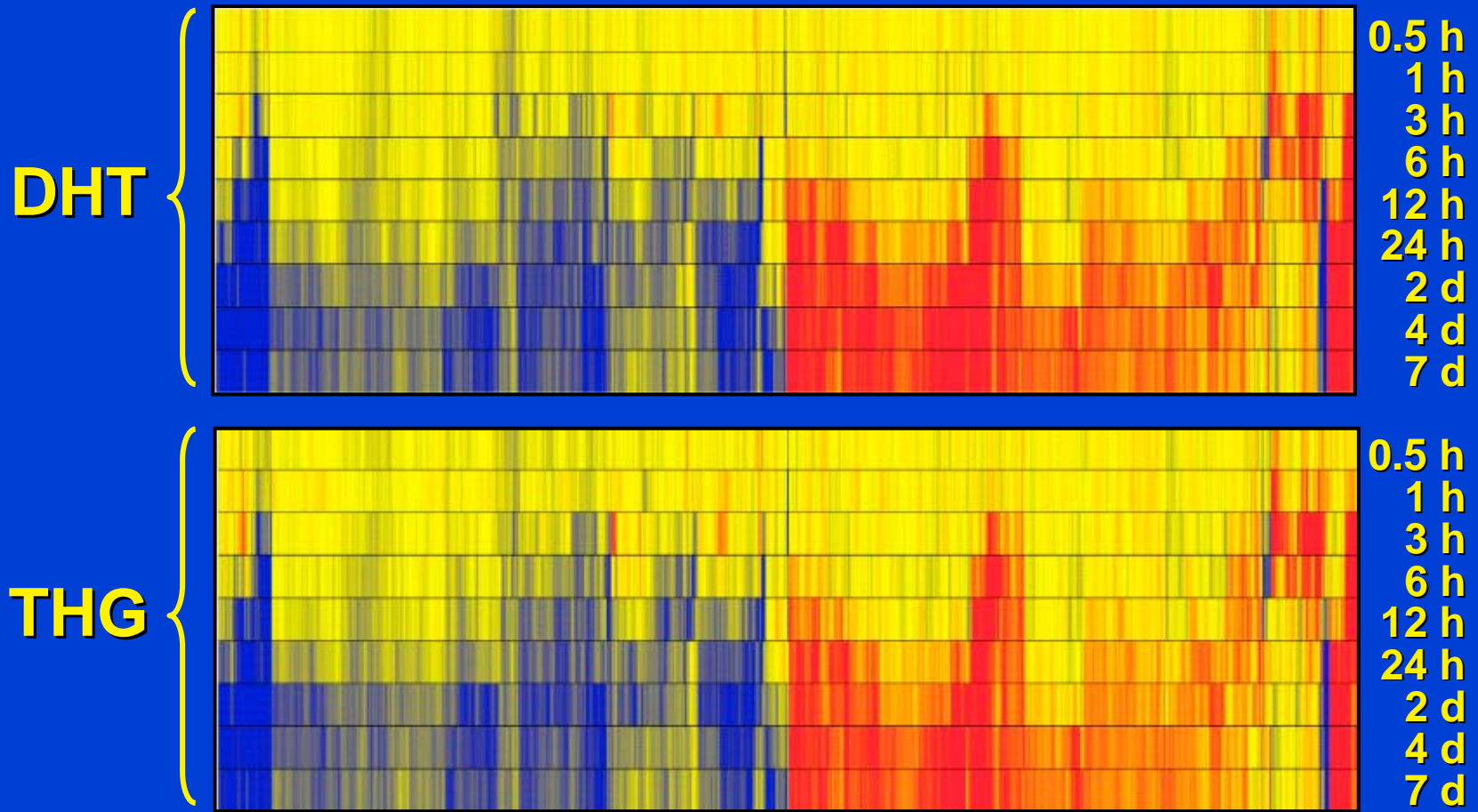
**2nd WADA SYMPOSIUM,
Stockholm, December 2005**

Tetrahydrogestrinone induces a genomic signature typical of a potent anabolic steroid

**Fernand Labrie, Van Luu-The, Ézequiel Calvo, Céline Martel,
Julie Cloutier, Sylvain Gauthier, Pascal Belleau, Jean Morissette,
Marie-Hélène Lévesque and Claude Labrie**

Molecular Endocrinology and Oncology Laboratory,
Laval University Medical Research Center (CRCHUL)
and Laval University, Québec City, G1V 4G2, Canada

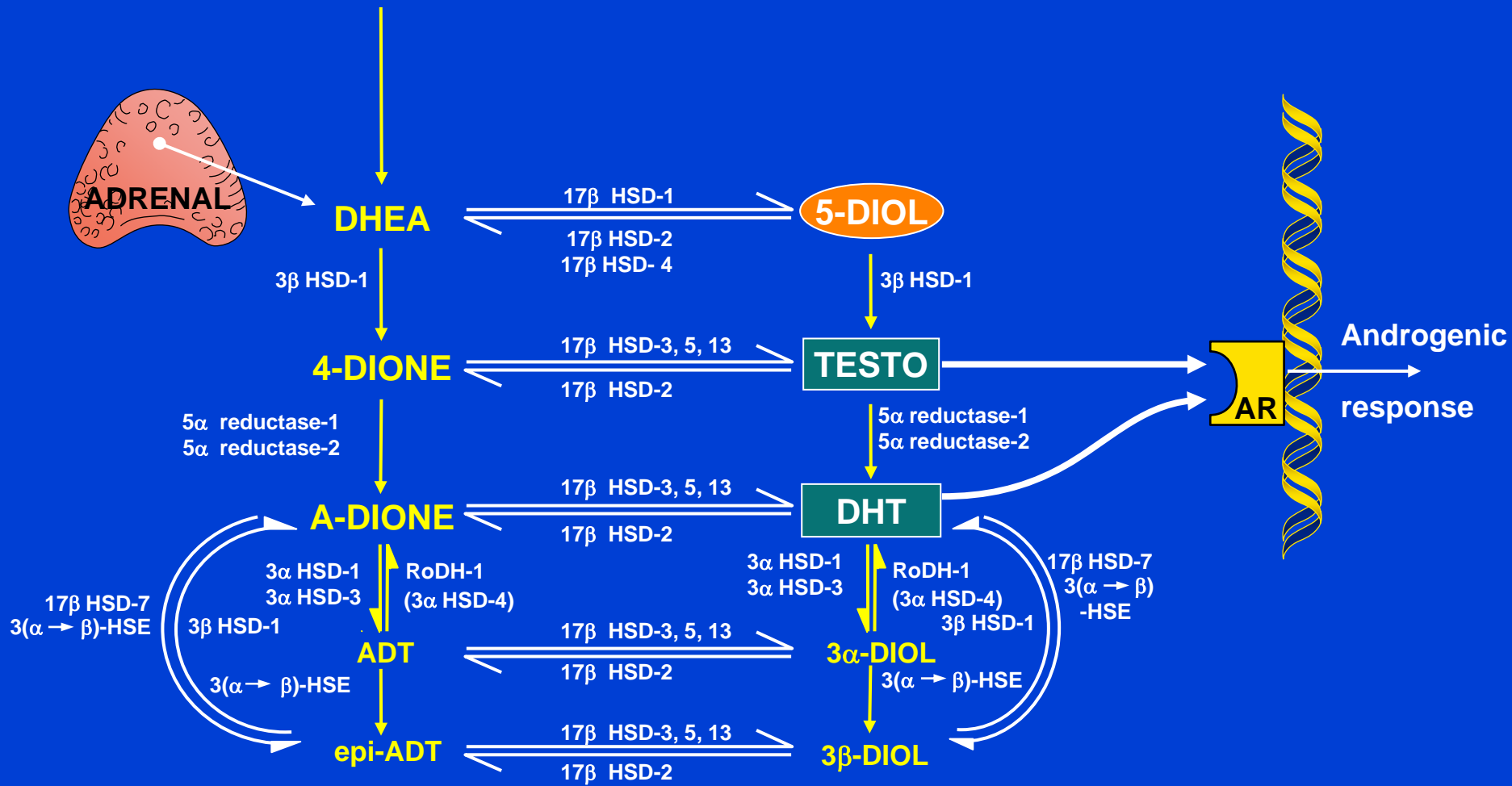
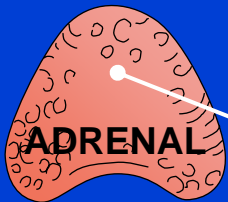
Journal of Endocrinology (2005) 184, 427-433

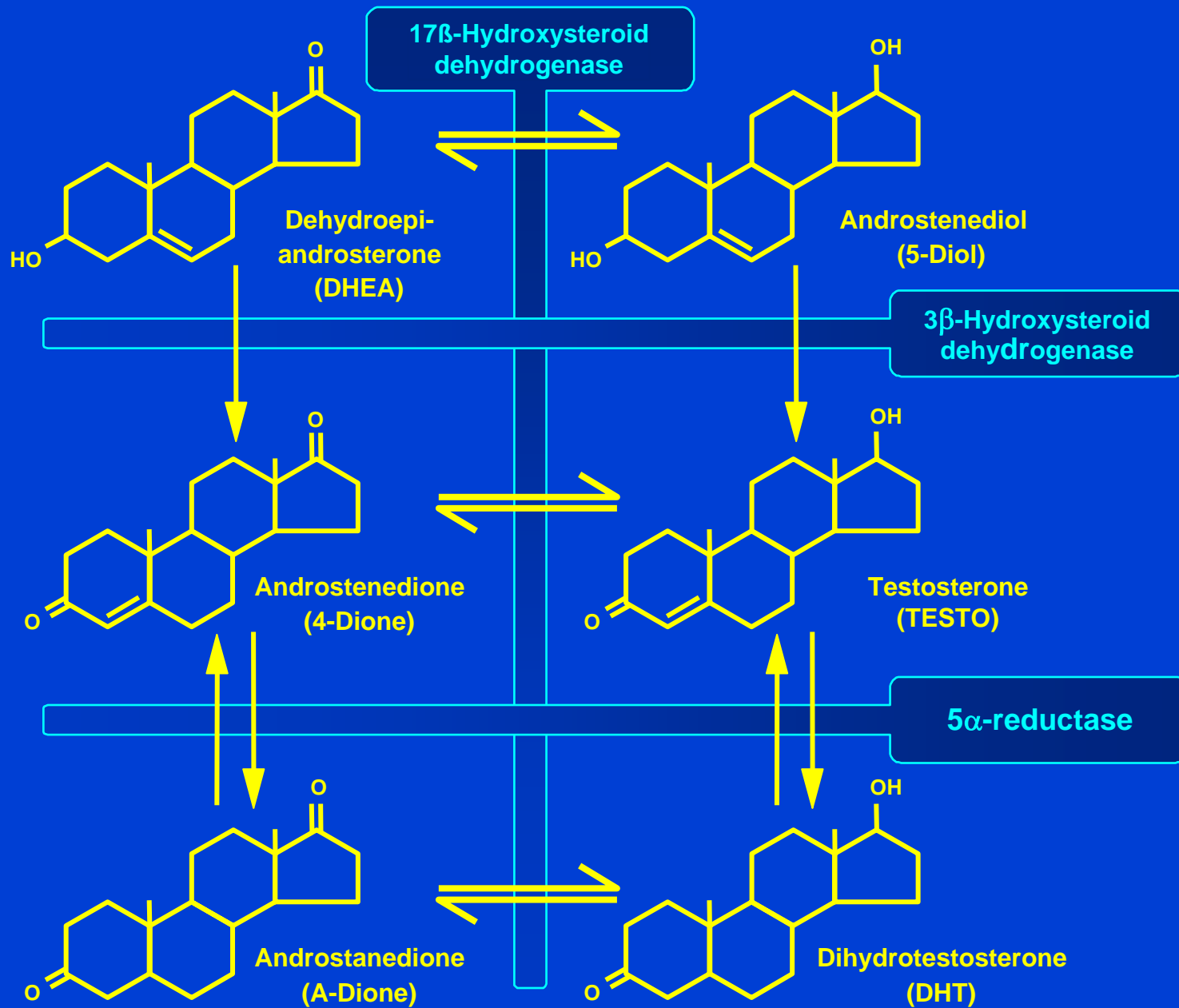


Levator ani (muscle)

WHAT IS DHEA ?

DRUG
"FOOD SUPPLEMENT !!"



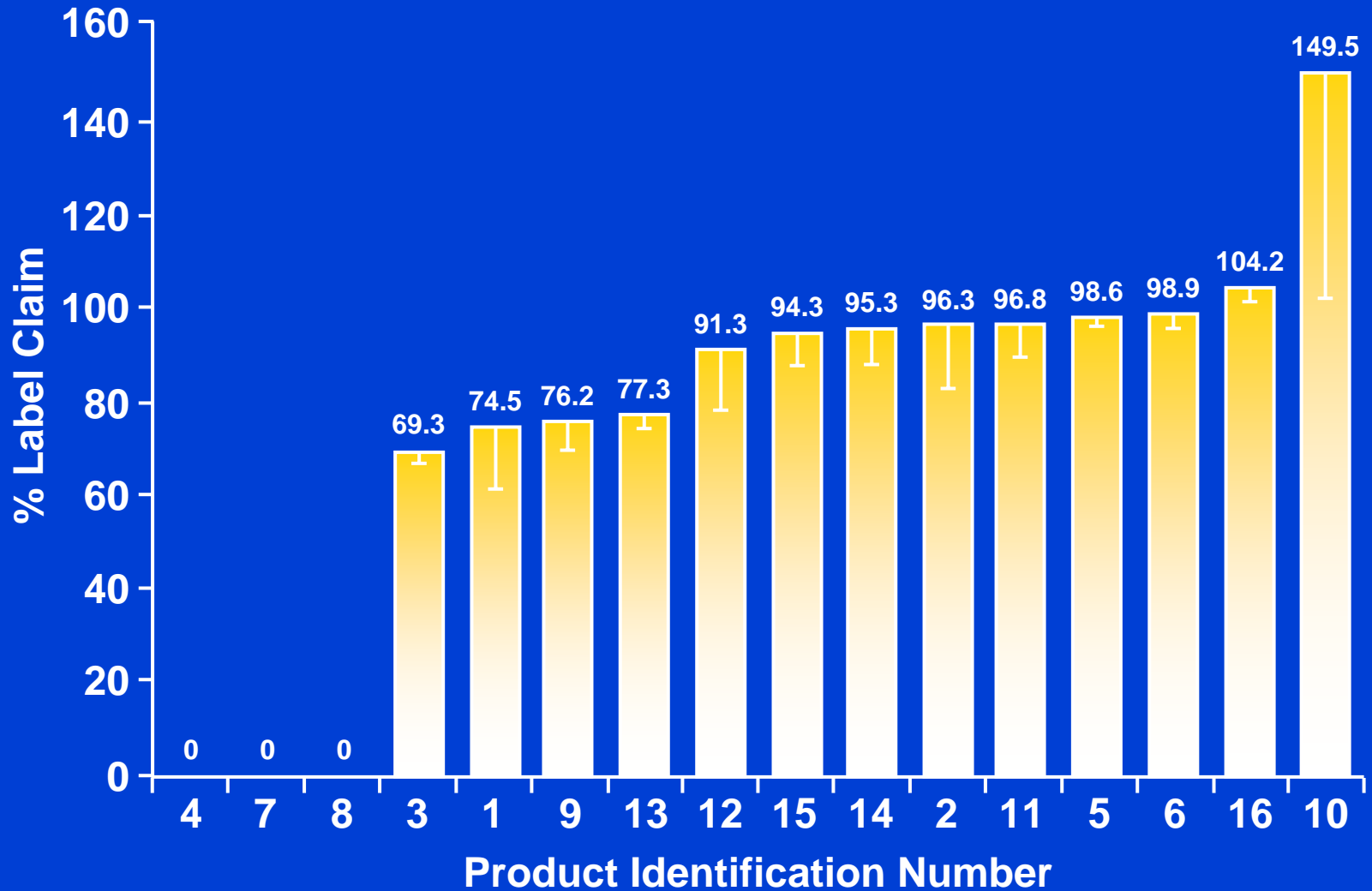


The Anabolic Steroid Control Act of 2004 has amended the US Controlled Substances Act to include androstenedione, but it excluded DHEA

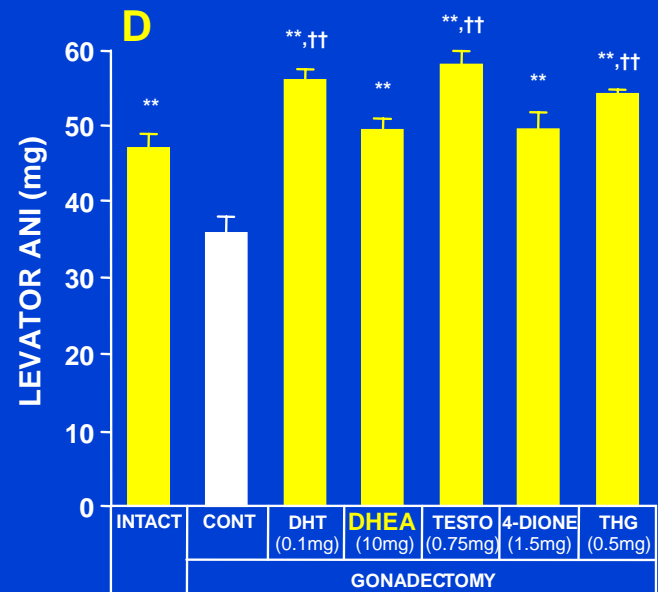
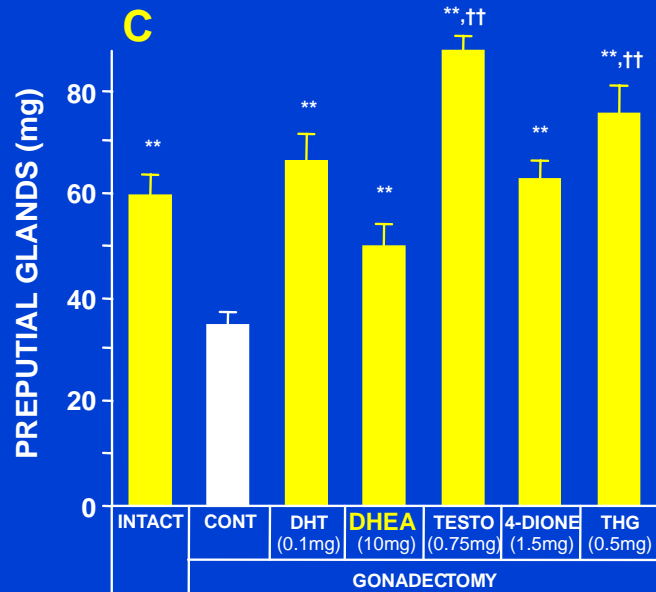
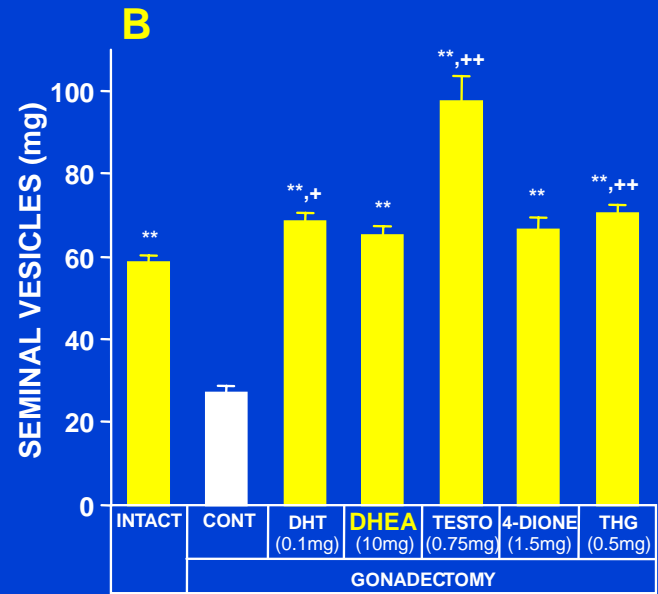
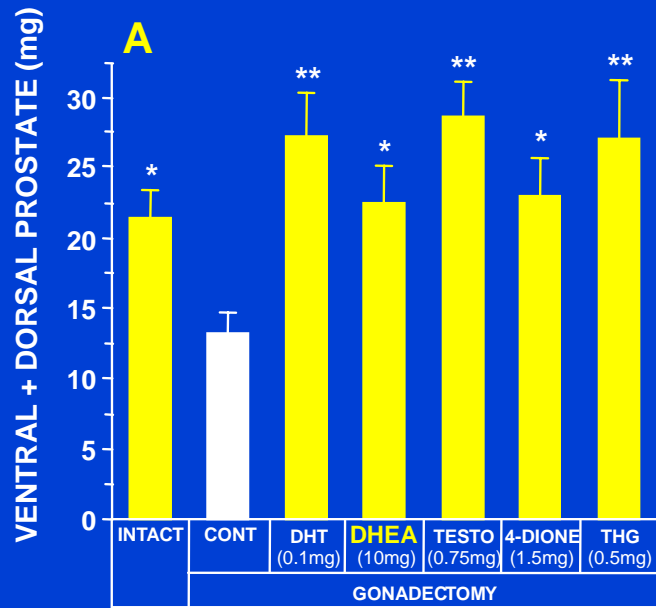
“The term anabolic steroid means any drug or hormonal substance chemically or pharmacologically related to testosterone (other than estrogens, progestins, corticoids and DHEA)”

**DHEA was thus excluded
“A PRIORI”**

QUALITY CONTROL OF DHEA DIETARY SUPPLEMENT PRODUCTS



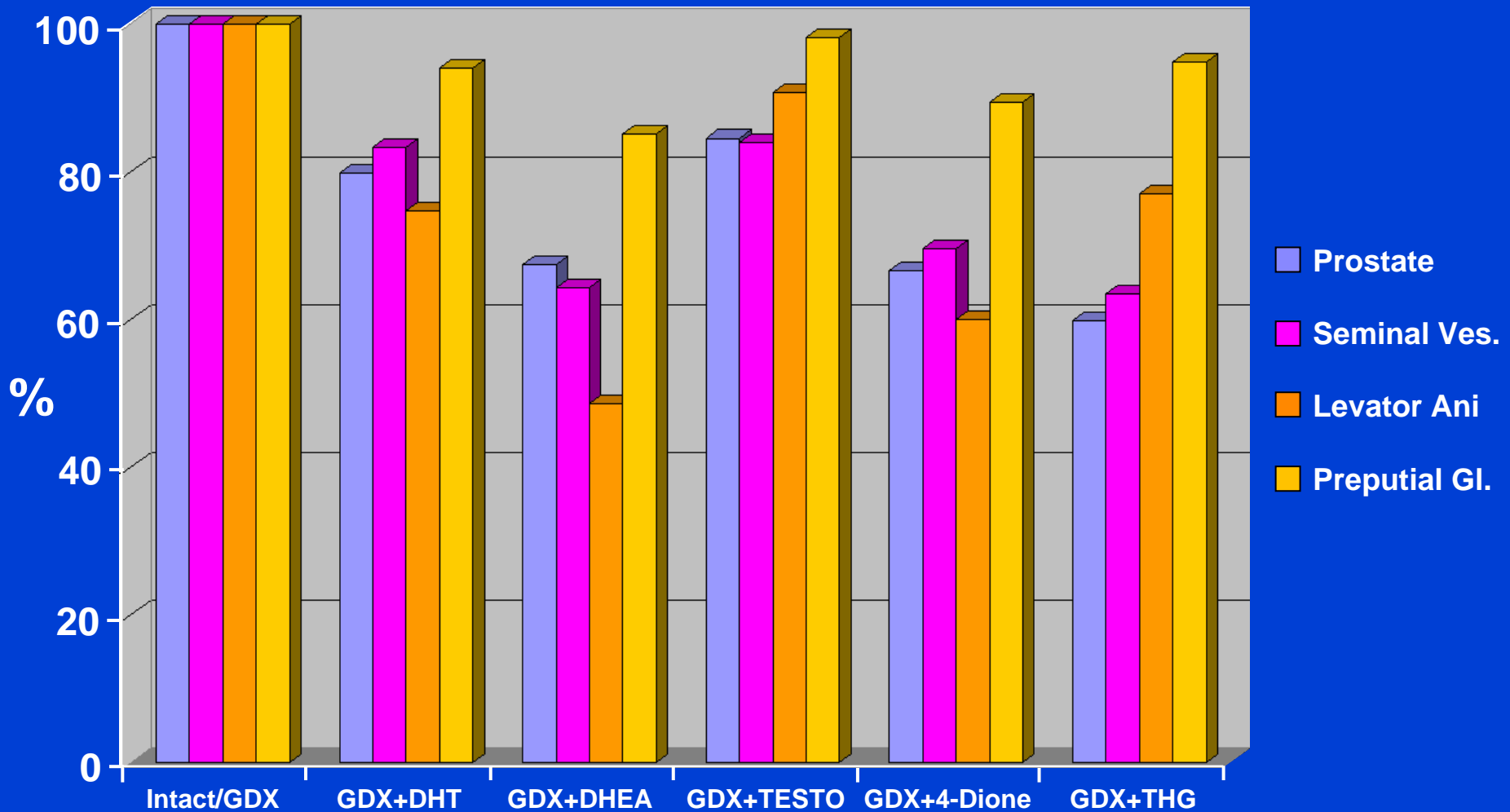
JAMA, 280, 1565-1566, 1998



*, p < 0.05, experimental versus GDX control,
 **, p < 0.01, experimental versus GDX control,

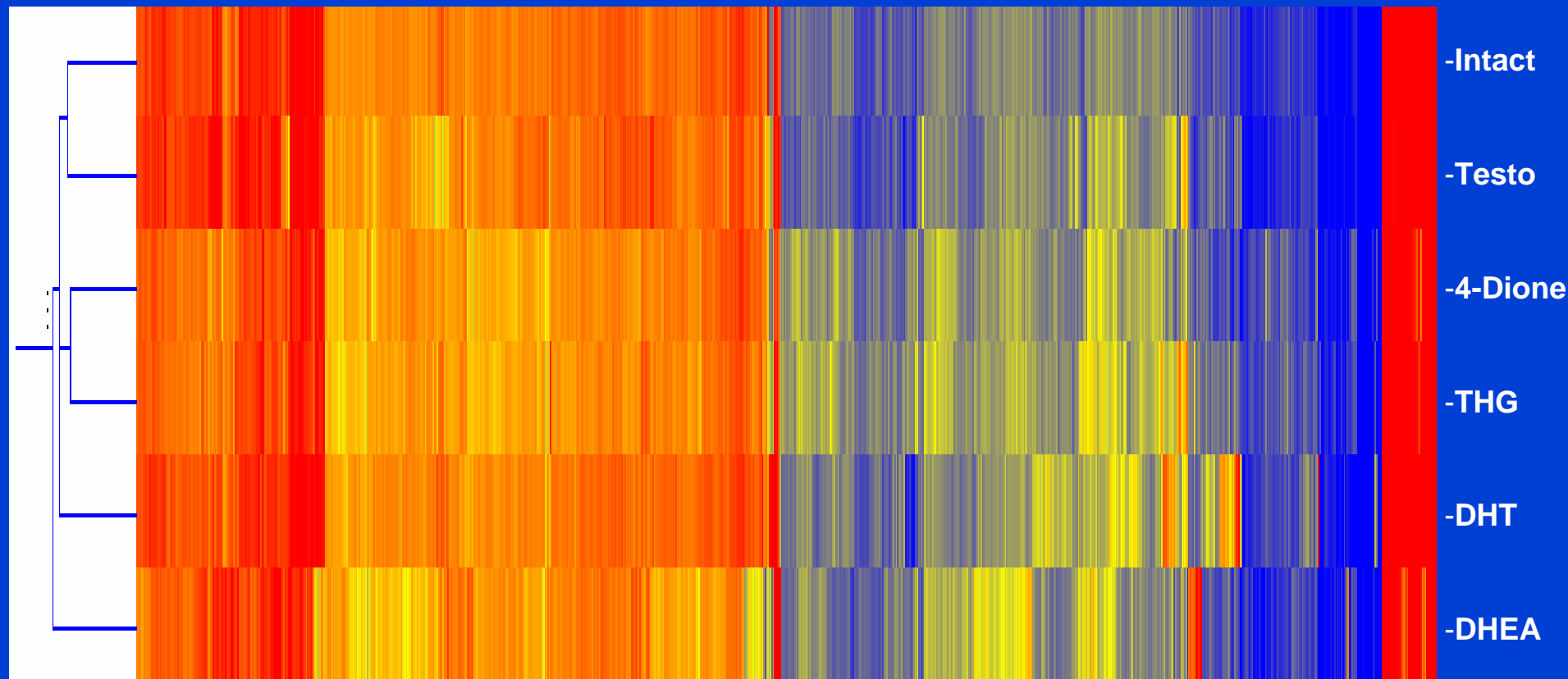
+, p < 0.05, experimental versus INTACT control,
 ++, p < 0.01, experimental versus INTACT control

Lists of probe sets modulated by each treatment in GDX mice (GDX+Vehicle vs GDX+steroid) and their intersection with the list of probe sets modulated by GDX (Intact+Vehicle vs GDX+Vehicle). Values are represented as a percentage of total genes modulated by Intact/GDX.



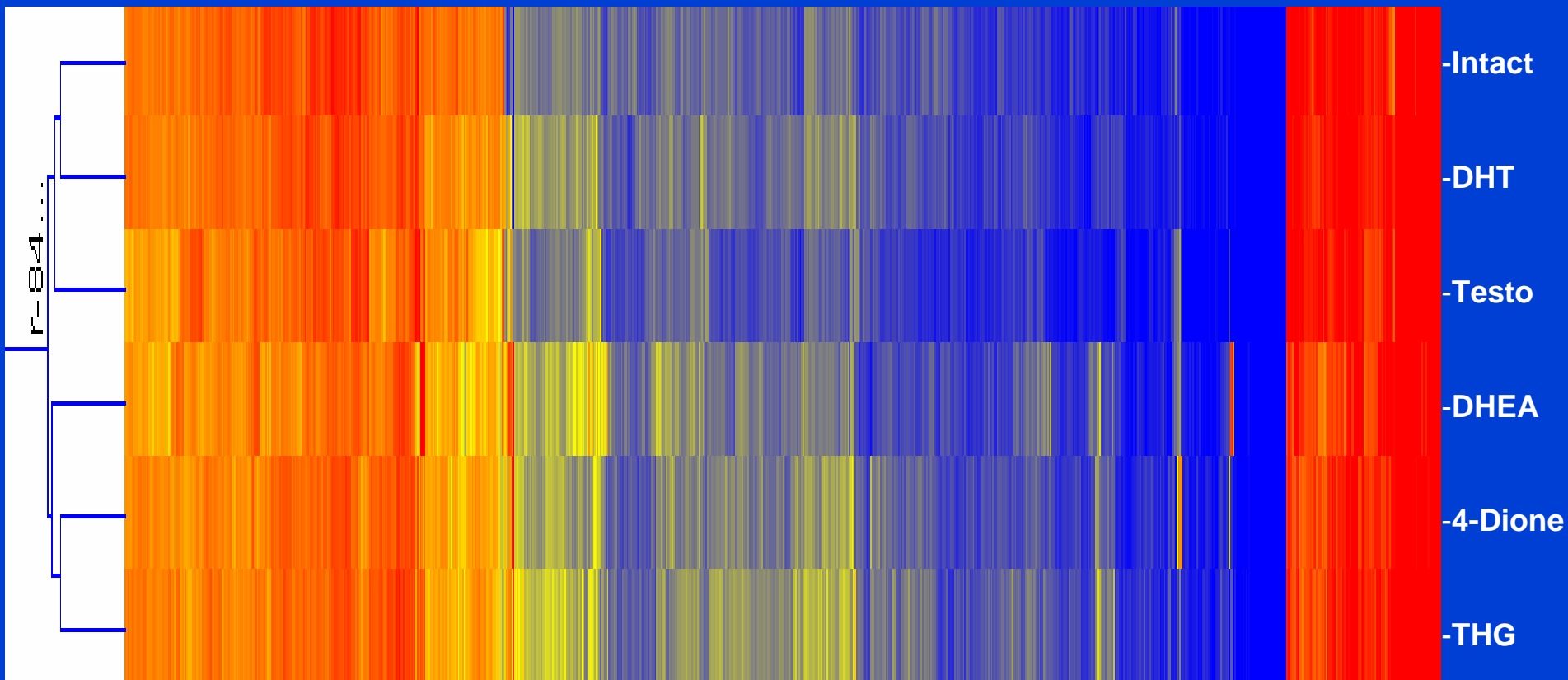
- Intact: non castrated mice; -GDX: gonadectomized mice; - DHT: dihydrotestosterone; - 4-DIONE: androstenedione; - DHEA: dihydroepiandrosterone; -TESTO: testosterone; - THG: tetrahydrogestrinone.

Gene expression profiling across the different steroid treatments in mouse prostate.



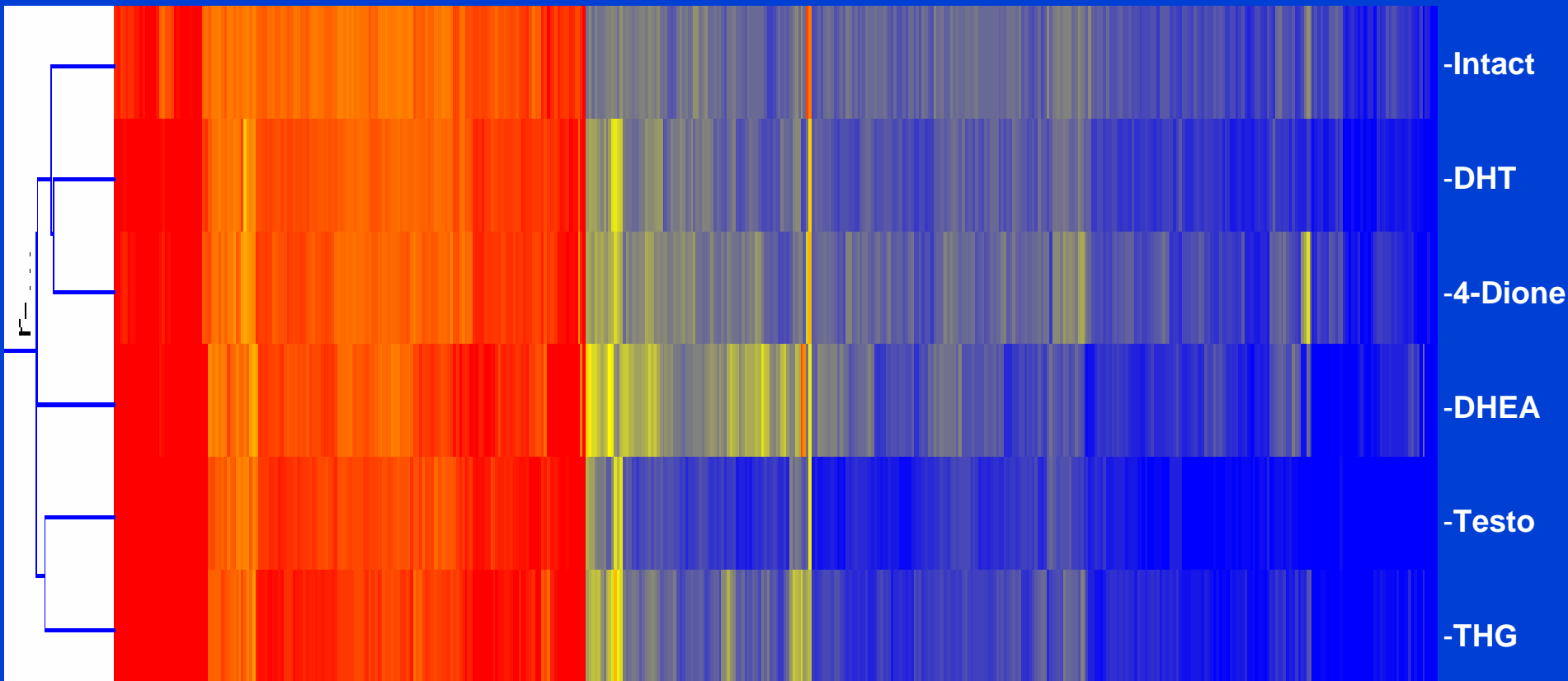
Hierarchical clustering algorithm was applied to median normalized expression data of 1964 selected genes modulated by GDX.

Gene expression profiling following different steroid treatments in mouse seminal vesicles.



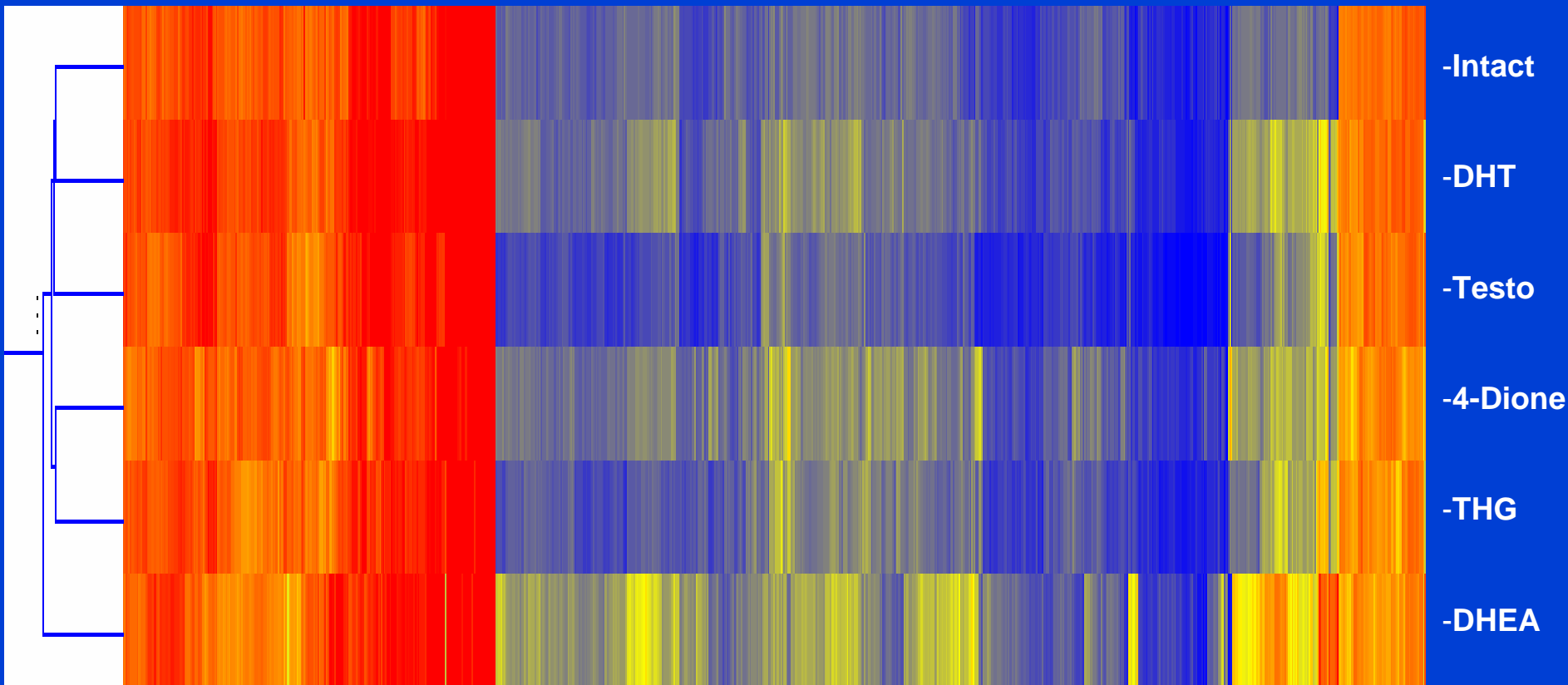
Hierarchical clustering algorithm was applied to median normalized expression data of 1719 selected genes modulated by GDX.

Gene expression profiling following different steroid treatments in mouse preputial glands



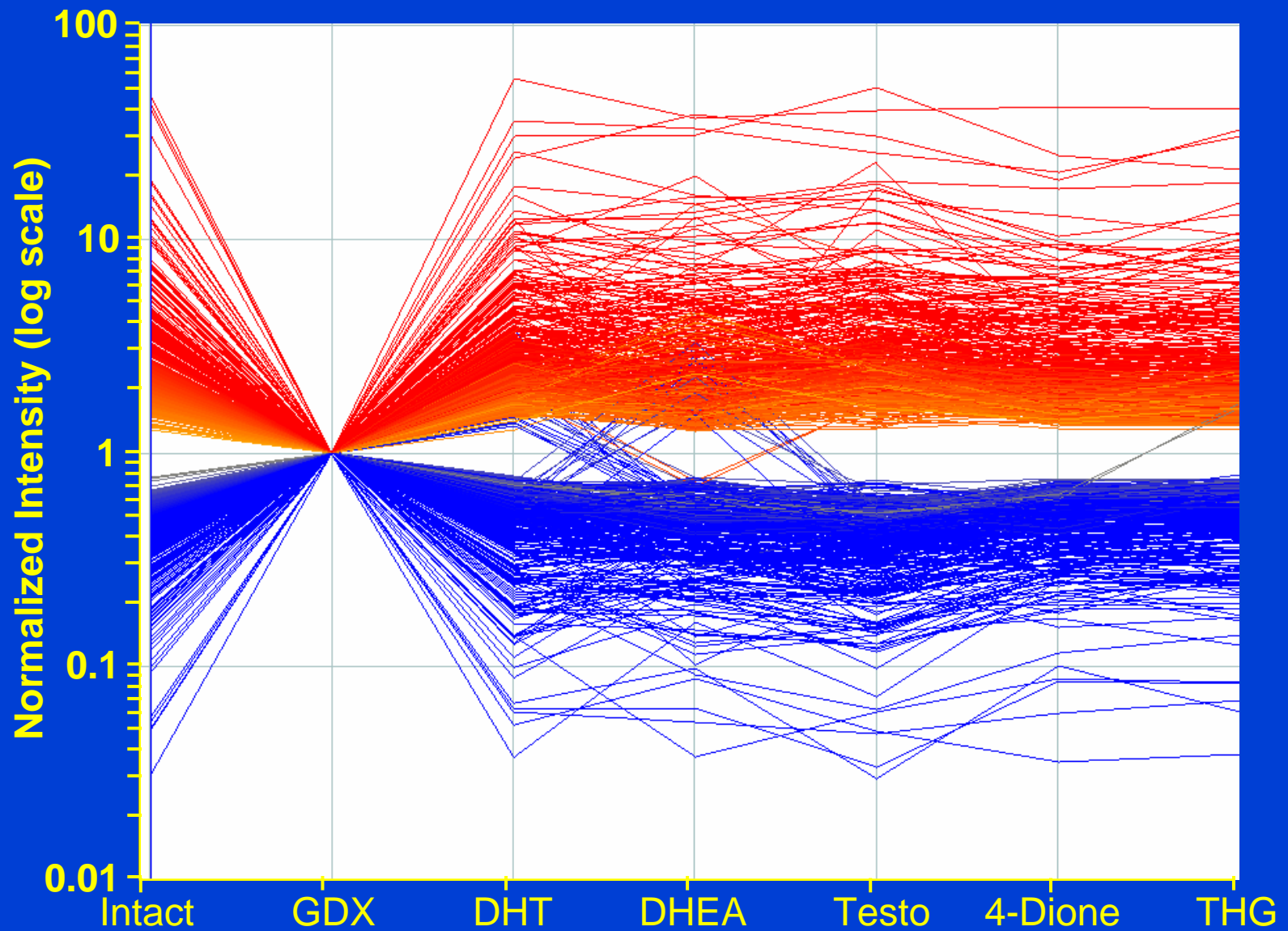
Hierarchical clustering algorithm applied to median normalized expression data of 469 selected genes modulated by GDX.

Gene expression profiling following different steroid treatments in mouse Levator Ani muscle.

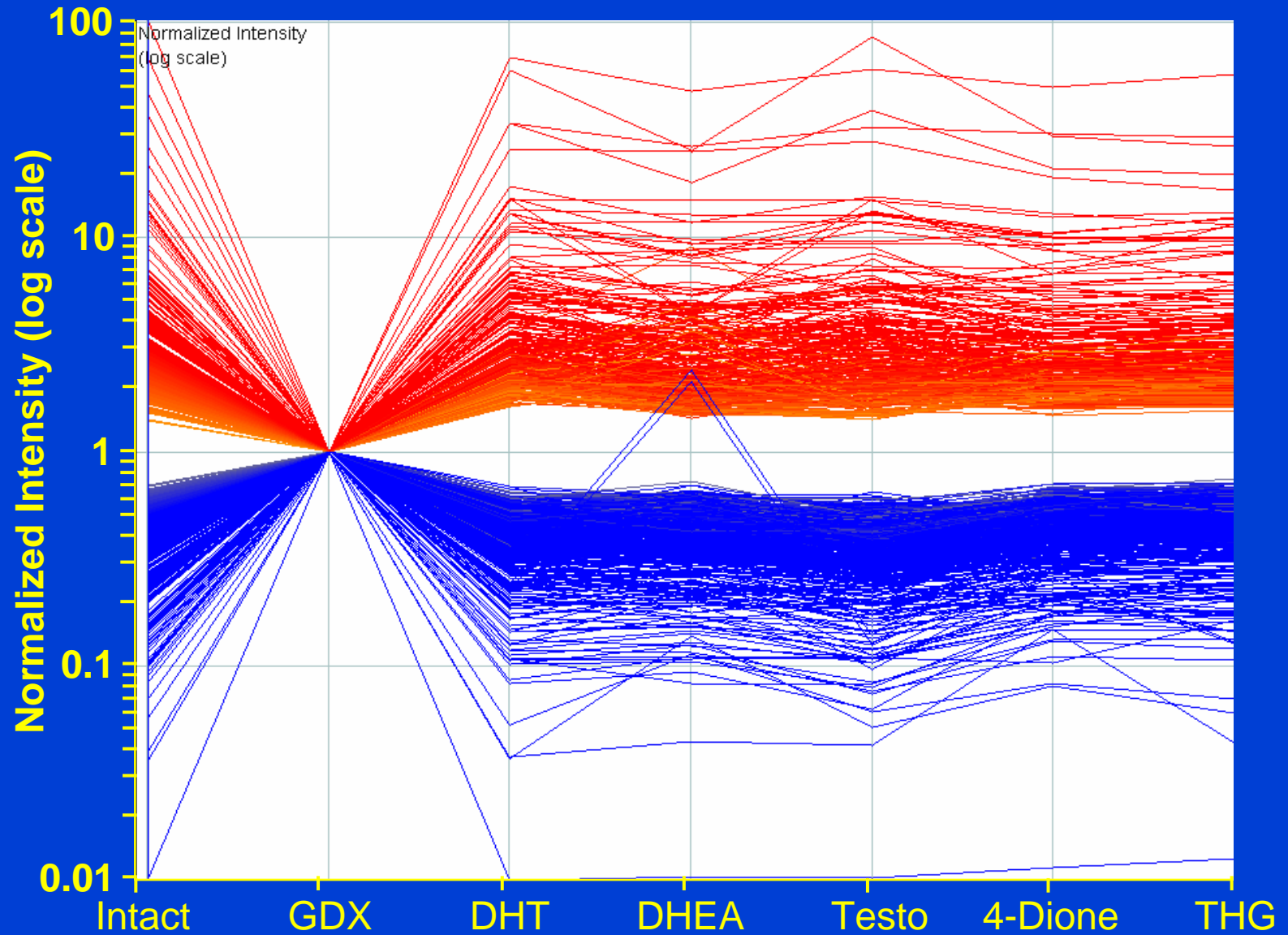


Hierarchical clustering algorithm was applied to median normalized expression data of 832 selected genes modulated by GDX.

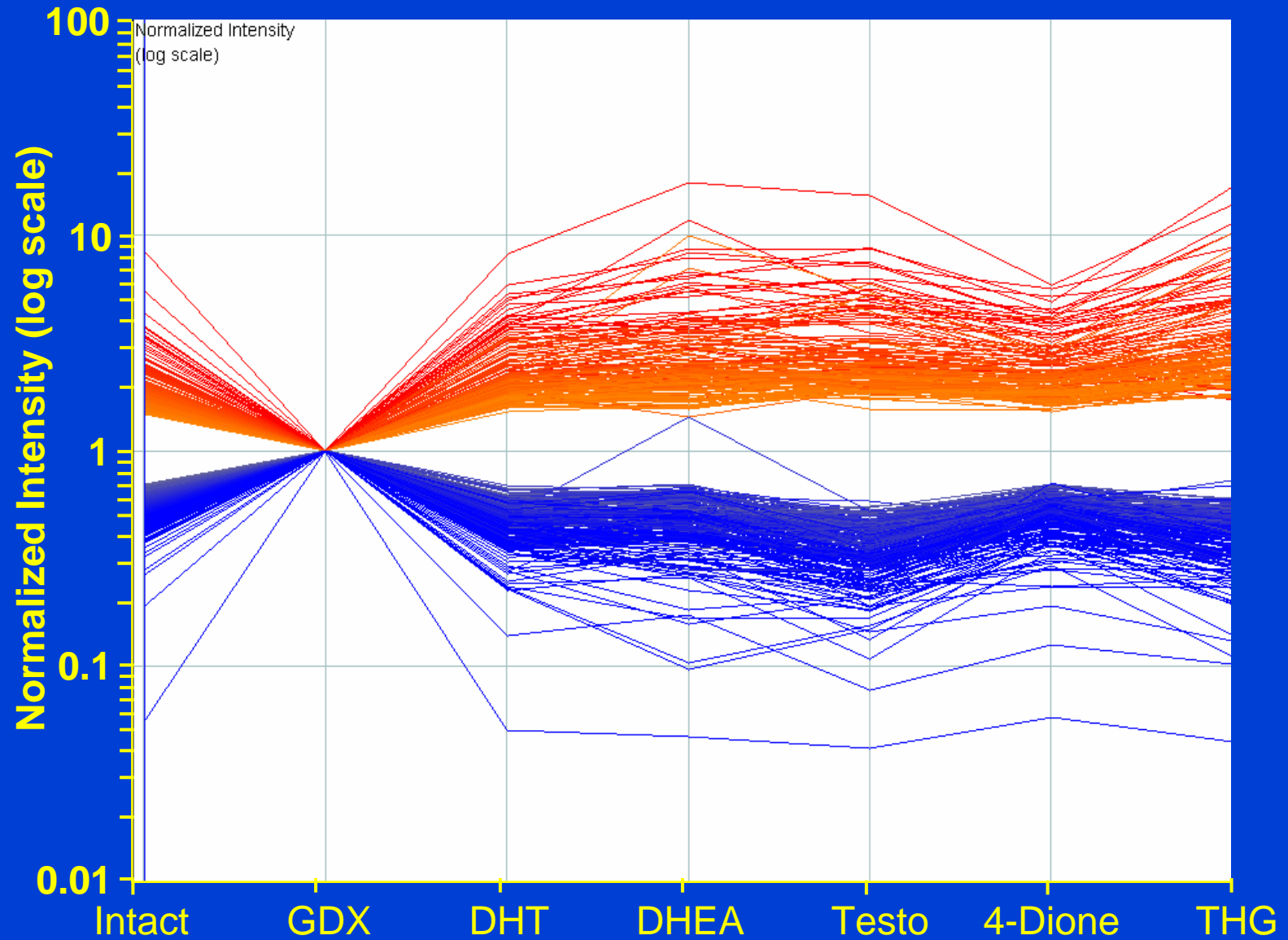
Prostate: Probe sets modulated by GDX and all treatments (774 probe sets)*



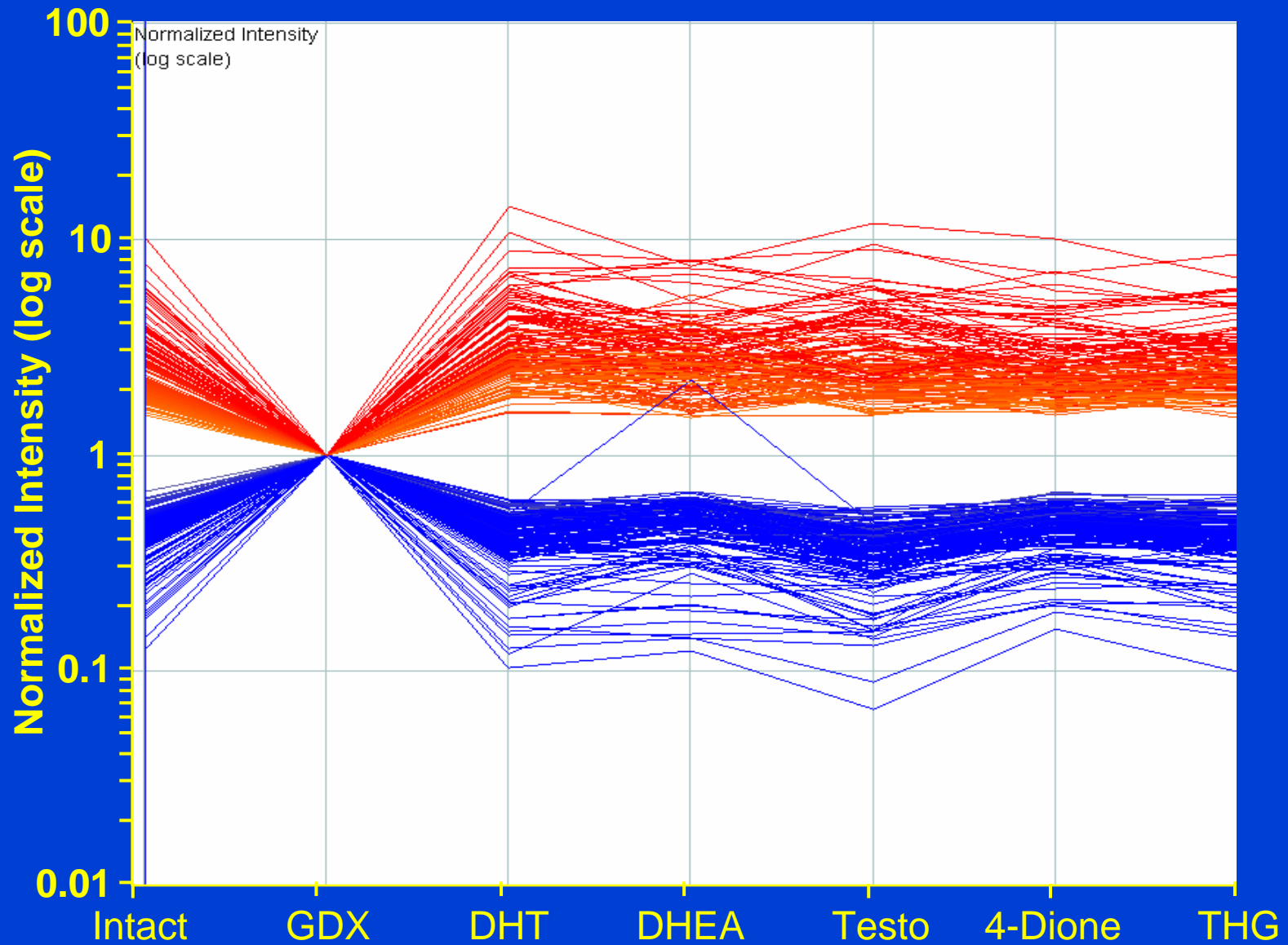
Seminal vesicles: Probe sets modulated by GDX and all treatments (807 probe sets)*



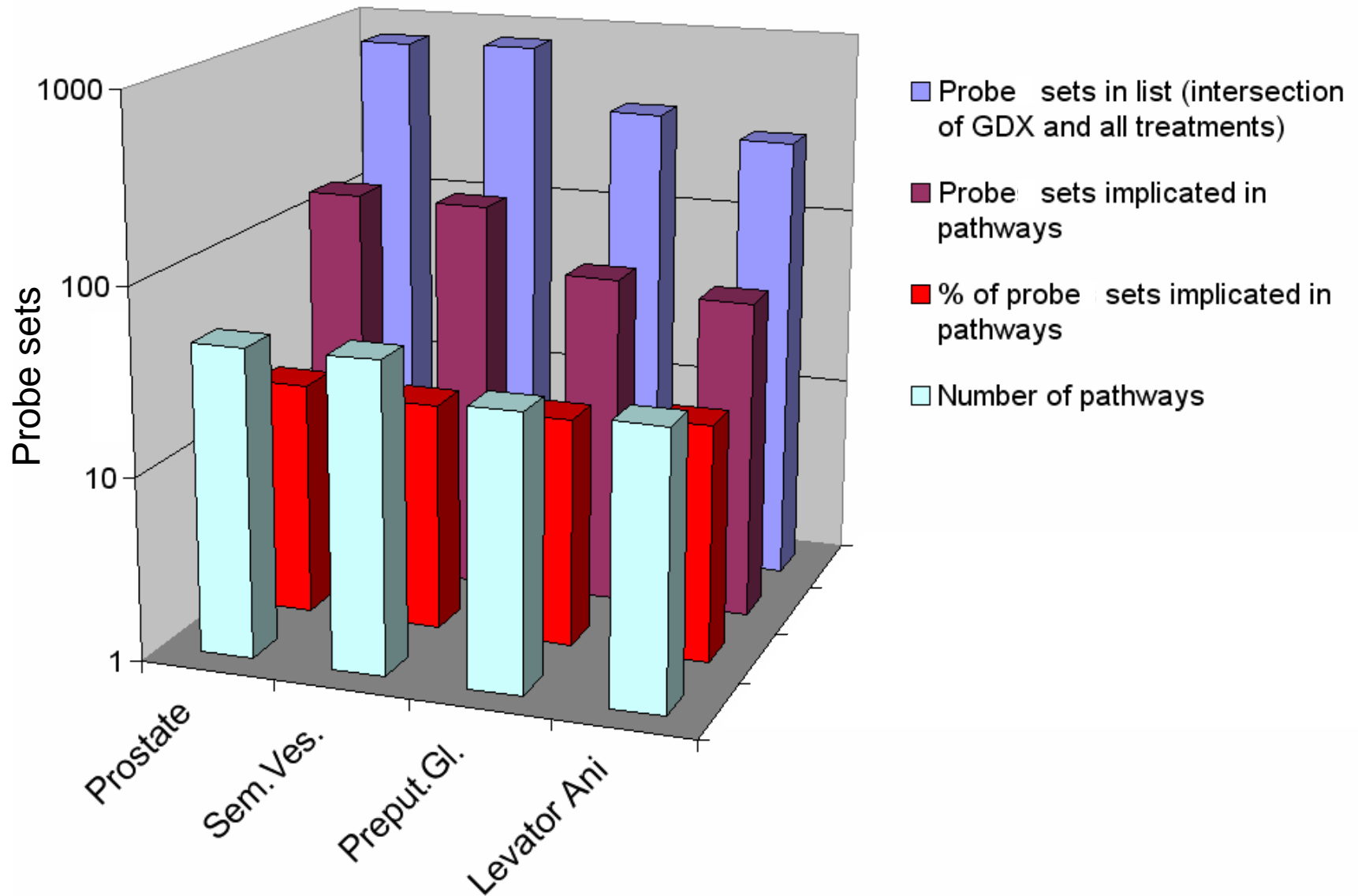
Preputial glands: Probe sets modulated by GDX and all treatments (371 probe sets)*



Levator Ani: Probe sets modulated by GDX and all treatments (288 probe sets)*



Signaling Pathways



**DHEA is an
anabolic steroid
like
testosterone,
androstenedione,
DHT and THG**