

# Analysis of Androgen Drugs by HPLC

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## **Pharmaceutical**

Androgenes are sex hormones with a steroid-like structure, which cause the formation of male primary and secondary sexual characteristics and increase sperm production. They are used for treating certain deficiency symptoms in males or as estrogen antagonists in females, for example, in the treatment of breast cancer.

Figure 1 shows the HPLC chromatogram of the two androgenes testosterone and testosterone acetate using gradient analysis on a reversed phase column and UV detection. The autosampler temperature was set to 4 °C to avoid decomposition of the samples.



Figure 1 Analysis of two androgen drugs

# **Conditions**

Column 4.6 x 125 mm Hypersil ODS, 5 µm Mobile phase A= water, B = acetonitrile Flow rate 1.0 ml/min Gradient at 0 min 50 % B at 10 min 90 % B **Column wash** at 13 min 90 % B at 15 min 50 % B **UV** detector variable wavelength detector at 0 min 254 nm at 6 min 234 nm, standard cell **Column compartment temperature** 40 °C Stop time 15 min Post time 5 min **Injection volume** 5μl



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#### **HPLC Performance**

Compound	LOD for S/N=2 (mg/l)*	Precision of RT (RSD of 10 runs) (50mg/l)*	Precision of Area (RSD of 10 runs) (50 mg/l)*
Testosterone	0.25	0.07	0.74
Testosterone acetate	0.25	0.03	0.74

\* Injection volume: 5 µl

The performance of the HPLC method is shown in the table above.

The HPLC method presented here shows an easy but reliable and precise analysis of the of the androgenes testosterone and testosterone acetate. The values for LOD, precision of RT and precision of area show the good performance of the HPLC analysis.

# Equipment

#### **Agilent 1100 Series**

- Quaternary pump (includes vacuum degasser)
- Thermostatted autosampler
- Thermostatted column
   compartment
- Variable wavelength detector, standard flow cell 10-mm path length, 13-µl cell volume
  Alternative:

Binary pump

- Vacuum degasser
- Diode array detector standard flow cell 10-mm path length, 13-µl cell volume
- Agilent ChemStation
   + 3D software

## Columns

- Hypersil ODS, 5 μm, 4 x 125 mm (Agilent part number 7992618-564)
- Recommended: Guard cartridges Hypersil ODS, 5 μm, 4 x 4 mm (Agilent part number 7992618-504, 10/pk)

## Note:

Since the method was specifically developed on the Agilent 1100 Series system you might not be able to reproduce this analysis on an older system or even on a new system with lower performance. To avoid sample decomposition it is necessary to use a cooled autosampler, for example, the Agilent 1100 Series thermostatted autosampler.

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