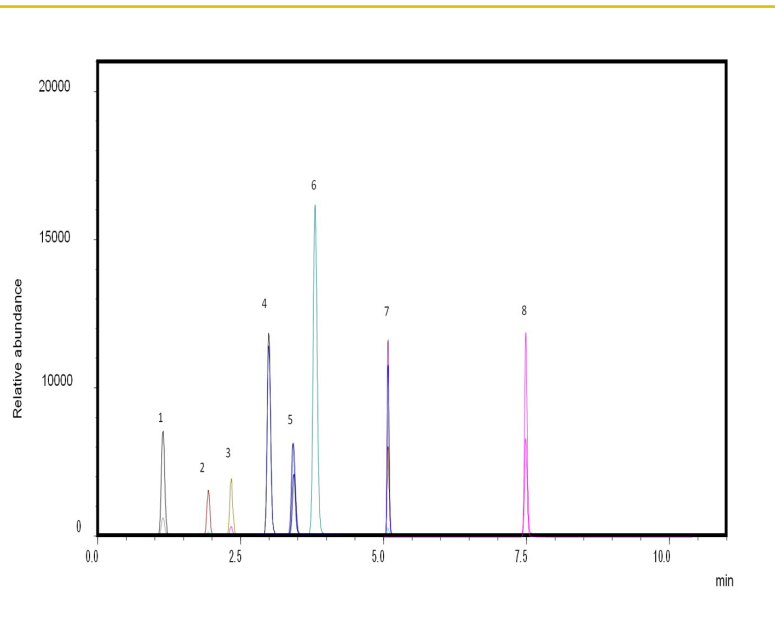




Steroids spiked in ground beef on HALO 90 Å C18

275-F



Peak id	Compound	Transition	RT (Min)
1	ALDOSTERONE	361.0000>343.1000	1.154
2	CORTICOSTERONE	347.6000>109.0000	1.965
3	ZERANOL	321.0000>277.0000	2.355
4	MGA	395.0000> 325.1000	3.100
5	TESTOSTERONE	289.0000>109.0000	3.366
6	17A-METHYLTESTOSTERONE	303.1000>97.0000	3.839
7	PROGESTERONE	315.0000>109.1000	5.085
8	ESTRADIOL 17β	272.4000>159.1000	7.501

TEST CONDITIONS:

Analytical Column: HALO 90 Å C18, 2.7 µm, 2.1 x 100 mm

Part Number: 92812-602

Mobile Phase A: Water, 5 mM Ammonium Formate, 0.1 % Formic Acid pH 4.0

Mobile Phase B: Methanol

Flow Rate: 0.3 mL/min

Pressure: 190 bar

Temperature: 50 °C

Injection Volume: 2.0 µL

Sample Solvent: 45/55/ MEOH/H₂O

Detection: +ESI/ -ESI MS/MS

LC System: Shimadzu Nexera X2

ESI LCMS system: Shimadzu LCMS-8040

Gradient:	Time	%B
	2.0	14
	3.0	60
	3.5	60
	8.0	100
	10.0	100
	10.5	0
	12.5	stop

MS Source Conditions:

Spray Voltage: 3.0 kV

Nebulizing gas: 2 L/min

Drying gas: 15 L/min

DL temp: 250 °C

Heat Block: 400 °C

For over fifty years, the Food and Drug Administration (FDA) has approved the use of a number of steroids in beef cattle, including natural estrogen, progesterone, testosterone, and their synthetic versions such as trenbolone acetate (TBA). The function of these drugs is to increase growth rate and the efficiency by which the animals convert the feed they eat into muscle/meat. The drugs are usually administered as implants (dosing of 100-200 days), which are placed under the skin on the back side of the animal's ear. The implants dissolve slowly under the skin and are not removed. Although cooking the meat does have some effect on the stability of the steroids in beef, it does not eliminate the exposure, as many steroids are stable at elevated temperatures. A standard panel of steroids spiked into ground beef, and then run on the HALO 90 Å C18, shows a highly resolved separation of all compounds. The panel consisted of common growth promoters and those used for therapeutic purposes, and was chosen to represent the most common steroids that can be expected to be found in beef, through therapeutic or growth promotion utilization.

