

Document Number:	TL07	Version Number:	3.0
Written by:	WADA Science	Approved by:	WADA Executive Committee
Reviewed by:	WADA <u>Laboratory Expert Group</u>		
Date:	21 December 2020	Effective Date:	1 January 2021

ANDARINE - FLUTAMIDE

1.0 Introduction

WADA wishes to draw the attention of the Laboratories to the following observations and instructions on the analysis and reporting of **SARM S4 (Andarine) Metabolites O-dephenylandarine** and **O-dephenylandarine glucuronide**.

The andarine *Metabolites* O-dephenylandarine and of O-dephenylandarine glucuronide may also be present in a *Sample* as a *Metabolite* of the anti-androgen **Flutamide** (Drogenil[®], Eulexin[®], Euflex[®], Flutamin[®], Flugere[®]), used primarily in the treatment of prostate cancer [1]. Since flutamide is not a *Prohibited Substance* in sports, the Laboratories shall not report an *Adverse Analytical Finding (AAF)* for andarine based on the monitoring of O-dephenylandarine [2].

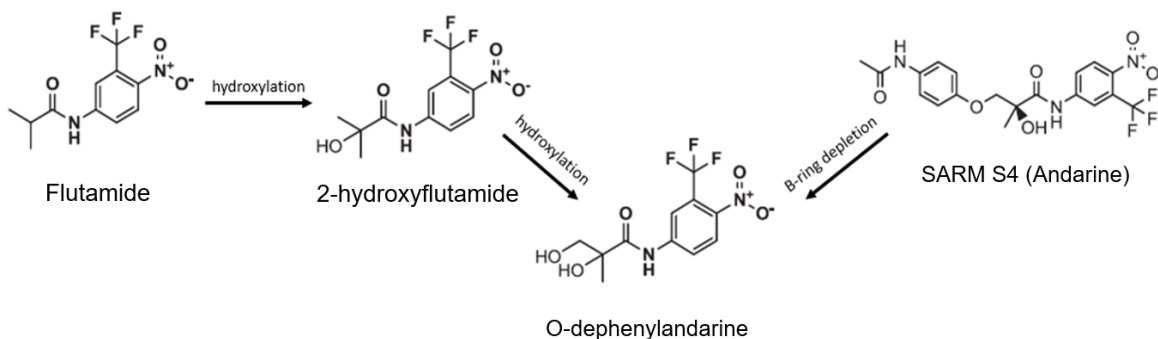


Figure 1. Proposed metabolic pathway of flutamide and andarine (adapted from Perrenoud *et al.* [1]).

2.0 Analysis and Reporting Requirements

Report the result as an *AAF* for andarine only when the presence of andarine (parent compound), and/or its glucuronic acid conjugate, and/or its deacetylated and/or hydroxylated *Metabolites*, and/or its bishydroxylated product [2] are confirmed in the *Sample* (regardless of the presence of flutamide and/or its *Metabolite* 2-hydroxyflutamide);

[Comment: Laboratories shall not report an *AAF* for andarine based only on the presence of O-dephenylandarine.]

3.0 References

- [1] Perrenoud L. *et al.* Risk of false positive results to SARM S4 in case of therapeutic use of antineoplastic/antiandrogen drug containing flutamide: a case study. *Drug Test Anal.* **8**(11-12): 1109-13, 2016.
- [2] Thevis M. *et al.* Mass spectrometric characterization of urinary metabolites of the selective androgen receptor modulator andarine (S - 4) for routine doping control purposes. *Rapid Commun Mass Sp.* **24**(15): 2245-54, 2010.