

# SALIVA TEST SPECIFICATIONS

## Estriol

### Clinical Information

Estriol is the weakest of the three major naturally-occurring estrogens in women. It is a product of the metabolism of estrone and estradiol and is excreted in the urine in greater amounts than estradiol. Because of its weak estrogenic activity, estriol is sometimes preferred for intravaginal use as an alternative to systemic estrogen therapy for the treatment of urogenital atrophy in postmenopausal women. It is also used in anti-aging skin creams as a form of topical estrogen replacement to counteract the effects of age-related estrogen loss on skin. Estriol is the major estrogen found in the maternal circulation during pregnancy; 90% of this circulating estriol is the product of metabolism of DHEA from the fetal adrenals, and so maternal estriol levels are used as an indicator of fetal health. In non-pregnant women, estriol levels are similar in both pre- and post-menopause, and are also similar to levels in men. The saliva test for estriol has been found to be predictive of increased risk of preterm labor in pregnant women. In non-pregnant women it is most commonly used for monitoring of levels in women using estriol-containing supplements as part of hormone replacement therapy.

The reference range for saliva estriol is <3.0 pg/mL in premenopausal women during the luteal phase; <1.9 pg/mL in postmenopausal women; and <1.7 pg/mL in men.

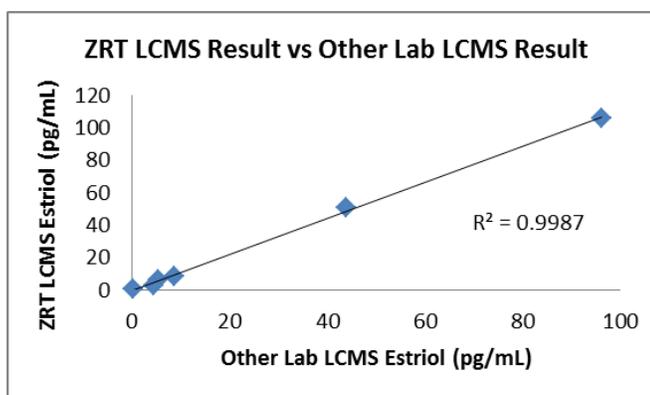
### References:

Hampson E, Phillips SD, Soares CN, Steiner M. Steroid concentrations in antepartum and postpartum saliva: normative values in women and correlations with serum. *Biol Sex Differ*. 2013;4:7.  
Soghra K, Zohreh S, Kobra AK, Reza MM. Single measurement of salivary estriol as a predictor of preterm birth. *Pak J Biol Sci*. 2014;17:730-4.  
Capobianco G, Donolo E, Borghero G, Dessole F, Cherchi PL, Dessole S. Effects of intravaginal estriol and pelvic floor rehabilitation on urogenital aging in postmenopausal women. *Arch Gynecol Obstet*. 2012;285:397-403.

### Assay Method: LC-MS/MS

#### Accuracy

ZRT has established the first salivary proficiency testing program, which includes most of the major saliva testing laboratories in the US. Twice yearly, results from prepared samples are compared to those from other laboratories that test estriol; one of these laboratories tests estriol using LC-MS/MS. As shown in the graph, ZRT results compare very favorably to the other saliva testing laboratory using LC-MS/MS for the estriol assay.



#### Precision/Reproducibility

Inter-assay precision was determined by choosing pooled saliva samples spanning the reportable range for estriol, and analyzing them multiple times over a 30-60 day period. Results are shown below:

Mean Estriol Concentration (pg/mL)	Coefficient of Variation (C.V. %)
6.6	10.9
37.8	9.8
104.5	8.6

#### Linearity

The ZRT saliva estriol assay gives excellent linearity over the reportable range of 0.6—2100 pg/mL. Samples giving values >2100 pg/mL are diluted and re-assayed for accurate reporting. Values below 0.6 pg/mL are not sufficiently precise and are reported as <0.6 pg/mL.

#### Sensitivity

The functional sensitivity for the estriol assay is 0.6 pg/mL.

#### Stability

Saliva samples are stable at room temperature for 30 days for estriol determination, but customers are advised to mail samples as soon as possible after collection. Samples are rejected for analysis if they were not received within 30 days of collection and were not refrigerated or frozen.

#### Accreditation

ZRT Laboratory is a CLIA certified testing laboratory.