Testing Catalog

A COMPLETE GUIDE TO ZRT LABORATORY

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About ZRT Laboratory

The only way to know if hormones are in balance is to test them.

Therefore, it's vital to partner with a lab that understands subtle differences between testing methods, and has both the experience and technology to deliver the most accurate results.

With numerous peer-reviewed studies validating that hormone test results support symptomatology, science now recognizes that hormones are a fundamental part of treating the whole body. Evidence shows that hormonal imbalances are the root cause of many chronic health issues.

With 25 years of experience and results from millions of tests, ZRT Laboratory is a recognized leader in innovative and meaningful hormone and wellness testing, being the first to commercialize many tests now considered mainstream. Health care providers in all 50 states and 96 countries, and research teams worldwide, use our tests including the CDC, the NIH and many renowned universities.

Est. 1998 – Beaverton, OR

ZRT Laboratory is a CLIA-certified commercial and research laboratory founded by breast cancer researcher David Zava, PhD. ZRT Laboratory has pioneered innovative testing methods for hormones, neurotransmitters, heavy metals and more, offering health care providers convenient testing options in different body fluids including saliva, dried blood spot, and dried urine. Since it began, ZRT has maintained a singular focus: providing comprehensive and meaningful test results that assist health care providers, and their patients, in making informed treatment decisions.

DR. DAVID ZAVA
FOUNDER

Breast cancer researcher and biochemist David Zava, PhD, founded ZRT in 1998. His desire to innovate the science of hormone testing provides the guiding force behind development of all ZRT's technology.

A Note from our Founder

We are the science behind testing.

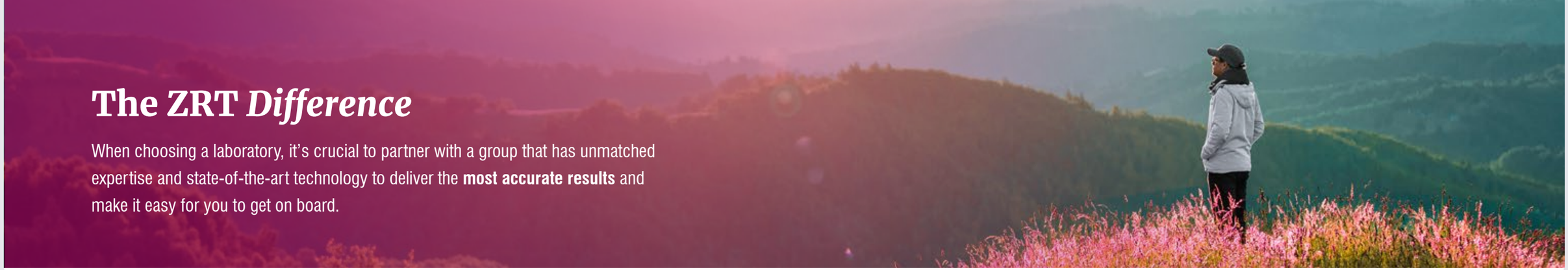
Hormones produced by endocrine glands (ovaries, testes, thyroid, pituitary, pancreas, etc.) are released into the bloodstream where they bind to carrier proteins and are slowly released into tissues throughout the body. Various body fluids have been successfully used to monitor the levels of hormones, which include blood from venipuncture (serum or plasma), capillary whole blood (blood spot), saliva, and urine.

Blood is traditionally collected by venipuncture and separated into serum or plasma. Capillary blood can also be collected from the fingertip or heel (in infants) and drops deposited onto filter paper and dried, which is referred to as dried blood spot (DBS). Blood provides a convenient means to measure levels of steroid and peptide hormones; however, it measures total circulating hormone including hormone bound to carrier proteins and requires a separate calculation to determine how much of the hormone is bioavailable to target cells. Also, diurnal patterns of hormone production cannot be measured conveniently in blood.

Saliva is a convenient matrix for measuring steroid hormone levels because the sample collection is simple and non-invasive (just spit into a tube) and the amount of steroid is representative of the bioavailable fraction available to tissues – about 1-5% of the total circulating in blood. Because of the lower concentration it challenges methods of detection and requires 10- to 100-fold greater sensitivity in detection methods. Saliva cannot be used to test peptide hormones.

Urine is also a convenient method for measuring total hormone production; it contains a high concentration of steroid metabolites and is simple to collect. Dried urine is even easier to collect at only four time points during the day and permits evaluation of diurnal patterns of hormone production. Disadvantages are that it only looks at metabolites scheduled for disposal by the body. It is not possible to determine how much active hormone is present in circulation. Also, it must be processed by enzyme digestion and is time consuming. Topical hormones cannot be monitored in urine as they are mostly excreted in bile and very little is detected in urine.

ZRT has developed convenient, at-home collection methods for all these options – giving maximum flexibility and optimal results for health care providers.



The ZRT *Difference*

When choosing a laboratory, it's crucial to partner with a group that has unmatched expertise and state-of-the-art technology to deliver the **most accurate results** and make it easy for you to get on board.

Advancing the Science of Testing

- Ongoing clinical research, published in peer-reviewed journals and presented at scientific meetings, in collaboration with investigators around the world including the CDC, NIH, the military and academic research centers.

Accuracy

- We ensure accurate test results for low-concentration hormones such as estradiol by using an extraction process for saliva testing.
- Precision and accuracy are maintained with rigorous proficiency, testing both internally and externally.

Flexibility & Convenience

- We offer all four test mediums (saliva, blood spot, dried urine) and a varied menu of tests, allowing maximum flexibility and optimal timing of sampling.
- First-morning saliva sampling measures peak hormone levels and ensures correspondence with supplementation ranges that depend on time since last hormone use. No need to collect four daily samples except when testing diurnal cortisol.
- We determine reference ranges for individual patient ages, menstrual status, and hormone supplementation, so patients don't need to stop taking hormones to use our testing.

Comprehensive Test Reports

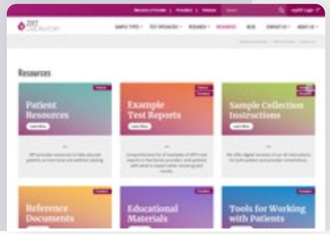
- Test results correlate hormone levels with reported symptoms and hormone supplementation.
- All reports are physician-reviewed with individualized comments, and include previous test results to compare current and past hormone levels to monitor patient progress.
- Secure, online access to test reports.

Provider Support

- On-call clinical consultants available without appointment to consult with medical practitioners regarding hormone testing and bioidentical treatment approaches.
- Complimentary educational webinars for medical professionals presented by physician experts in the areas of physiology and endocrinology; complimentary patient education webinars.

Patient & Provider Education

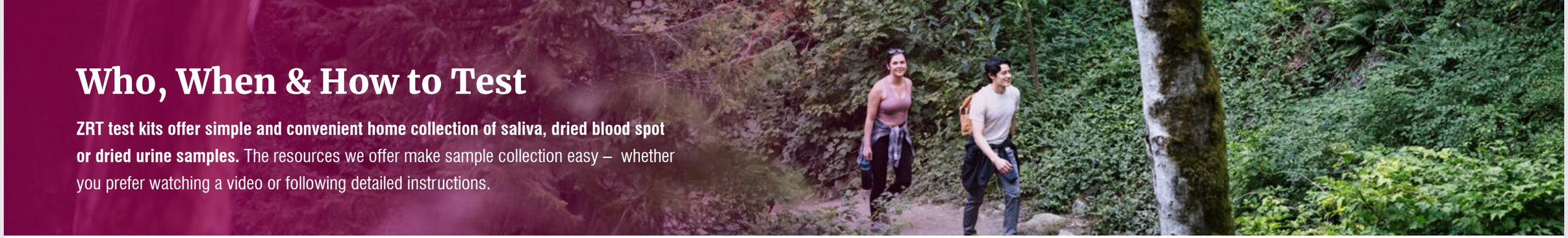
- Patient education brochures and point-of-sale displays.
- Online access to resource materials, webinars, and reference documents.
- Discounted yearly testing for provider employees.



ZRT's Resource Library

Find comprehensive educational materials for practitioners and patients about ZRT's innovative testing.

THE ZRT DIFFERENCE



Who, When & How to Test

ZRT test kits offer simple and convenient home collection of saliva, dried blood spot or dried urine samples. The resources we offer make sample collection easy – whether you prefer watching a video or following detailed instructions.

Who to Test

Candidates for hormone testing include men and women who are struggling with:

- Hot flashes
- Night sweats
- Foggy thinking
- Decreased sex drive
- Vaginal dryness
- Acne
- Increased body/facial hair
- Heavy or irregular menses
- PMS/PMDD
- Fibrocystic breasts
- Breast cancer
- Infertility or PCOS
- Chronic stress and/or fatigue
- Weight gain, especially around the waist
- Heart palpitations
- Dry skin/brittle nails
- Cold hands and feet

Candidates for neurotransmitter testing include adults and children who are struggling with:

- Anxiety
- Depression
- Chronic fatigue
- Impulsivity
- Insomnia
- OCD or ADHD

Candidates for heavy metals & essential elements testing include adults and children who:

- Have exposure to well water or aging pipes
- Live in an older home or industrial area
- Have mercury dental work
- Consume foods like vegetables, rice and seafood that may be tainted by heavy metals
- Smoke cigarettes

When to Test

Hormones

- Pre-menopausal women should collect saliva, blood or urine on days 19-21 of their cycle. Women with irregular cycles should collect five days before they think their period will start.
- Post-menopausal and non-cycling women, men and children can collect any day of the month.
- See specialized instructions for those using hormones.

Neurotransmitters

- Cycling women can collect any day they aren't bleeding.
- Non-cycling women, men and children can collect any day of the month.

Heavy Metals & Essential Elements

- Cycling women can collect urine any day they aren't bleeding. They can collect blood any day.
- Non-cycling women, men and children can collect urine or blood any day of the month.

How to Test

Once you have identified a patient who can benefit from testing, follow these steps:

Alleviate Concerns

- Explain that the testing process is simple. ZRT saliva, blood spot, and urine test kits require no needles or lab visits.
- All samples can be collected at home and returned to the lab by UPS.

Walk Through the Test Kit

- Walk through the test kit with patients, pointing out:
  - Collection instructions
  - Saliva tubes/blood spot lancets and filter card/urine cards
  - Postage paid return label/mailer bag

Review Collection

- Encourage patients to read collection instructions prior to testing, and fill out the paperwork the night before collection, leaving only Section 5 of the form (Sample Collection Dates and Times) to fill in the day of collection.
- Encourage patients to view ZRT's collection videos online at www.zrtlab.com/sample-collection

ZRT's Symptom Checklists will help identify which patients can benefit from testing and what type of testing is best for them - download those at **www.zrtlab.com/resources**

WHO, WHEN & HOW TO TEST

Standard Kits

SALIVA

Saliva Profile I: E2, Pg, T, DS, C

Saliva Profile II: E2, Pg, T, DS, Cx2

Saliva Profile III: E2, Pg, T, DS, Cx4

Hormone Trio: E2, Pg, T

Adrenal Stress Profile: DS, Cx4

Diurnal Cortisol Profile: Cx4

New! Saliva Steroid LC-MS Profile 7: E1, E2, E3, Pg, T, DS, C

Saliva Steroid LC-MS Profile 23: E2, E3, E1, EE, PregS, Pg, AlloP, 17OHPg, Adione, T, DHT, D, DS, 7keto, 11DC, C, Cn, Ccn, Ald, Mel, ANZ, FIN, LTZ

DRIED BLOOD SPOT

Expanded! Female Blood Profile I: E3, E2, E1, Pg, T, SHBG, DS, C

Female Blood Profile II: E2, Pg, T, SHBG, DS, C, TSH, fT3, fT4, TPOab

Expanded! Male Blood Profile I: E2, E1, Pg, T, PSA, SHBG, DS, C

Male Blood Profile II: E2, T, PSA, SHBG, DS, C, TSH, fT3, fT4, TPOab

Hormone Trio: E2, Pg, T

Vitamin D Profile: 25-OH D2, 25-OH D3, total

CardioMetabolic Profile: In, hsCRP, HbA1c, TG, CH, HDL, LDL, VLDL

Toxic & Essential Elements: Zn, Cu,Mg, Se, Cd, Hg

Essential Thyroid Profile: TSH, fT3, fT4, TPOab

Elite Thyroid Profile: T4, Tgbn, TSH, fT3, fT4, TPO

SALIVA + BLOOD

Comprehensive Female Profile I
Saliva: E2, Pg, T, DS, Cx4
Blood Spot: TSH, fT3, fT4, TPOab

Comprehensive Female Profile II
Saliva: Cx4
Blood Spot: E3, E2, E1, Pg, T, SHBG, DS, TSH, fT3, fT4, TPOab

Comprehensive Male Profile I
Saliva: E2, T, DS, Cx4
Blood Spot: PSA, TSH, fT3, fT4, TPOab

Comprehensive Male Profile II
Saliva: Cx4
Blood Spot: E2, E1, Pg, T, SHBG, PSA, DS, TSH, fT3, fT4, TPOab

BLOOD + URINE

Comprehensive Thyroid Profile
Dried Urine: I, Se, Br, Li, As, Cd, Hg, Crtn
Blood Spot: T4, Tgbn, TSH, fT3, fT4, TPOab

Comprehensive Toxic & Essential Elements Profile
Dried Urine: I, Br, Se, Li, As, Cd, Hg, Crtn
Blood Spot: Zn, Cu, Mg, Se, Cd, Hg

About ZRT Laboratory Test Kits

ZRT's all-inclusive test kits are designed for private sample collection at home, at the optimal time.

Learn more about testing with ZRT at zrtlab.com.

Specialty Kits

NEUROTRANSMITTERS

Neurotransmitters Profile
Dried Urine: GABA, Glu, Gly, DA, Epi, NE, HIST, 5-HT, PEA, DOPAC, HVA, 5-HIAA, NMN, VMA, Trp, Kyn, 3-OHKyn, Tau, Gln, His, N-MeHist, Tyra, KynAc, Xanth, Tyr & Crtn

Neurotransmitters + Saliva Steroids Profile
Dried Urine: GABA, Glu, Gly, DA, Epi, NE, HIST, 5-HT, PEA, DOPAC, HVA, 5-HIAA, NMN, VMA, Trp, Kyn, 3-OHKyn, Tau, Gln, His, N-MeHist, Tyra, KynAc, Xanth, Tyr, Crtn
Saliva: E2, Pg, T, DS, C

Neurotransmitters + UDH I Profile

Neurotransmitters + UDH II Profile

Neurotransmitters + UDH III Profile

New! Neurotransmitters + Saliva Steroids + UDH III Profile

WEIGHT MANAGEMENT

Weight Management Profile
Saliva: E2, Pg, T, DS, Cx4
Blood Spot: TSH, D2, D3, In, HbA1c

Weight Management + Thyroid Profile
Saliva: E2, Pg, T, DS, Cx4
Blood Spot: TSH, D2, D3, In, HbA1c, fT3, fT4, TPOab

Weight Management + Cardio Profile
Saliva: E2, Pg, T, DS, Cx4
Blood Spot: TSH, D2, D3, In, HbA1c, hsCRP, TG, CH, LDL, VLDL, HDL

Weight Management + Thyroid + Cardio Profile
Saliva: E2, Pg, T, DS, Cx4
Blood Spot: TSH, D2, D3, In, HbA1c, fT3, fT4, TPOab, hsCRP, TG, CH, LDL, VLDL, HDL

SLEEP BALANCE

Urine Diurnal Hormones (UDH) I Profile
Dried Urine: Free Cortisol x 4, Free Cortisone x 4, Crtn

UDH II Profile
Dried Urine: Free Cortisol x 4, Free Cortisone x 4, Melatonin (MT6s) x 4, Crtn

UDH III Profile
Dried Urine: Free Cortisol x 4, Free Cortisone x 4, Melatonin (MT6s) x 4, NE x 4, Epi x 4, Crtn

HEAVY METALS & ESSENTIAL ELEMENTS

Iodine Panel - Urine Profile
I, Crtn

Toxic & Essential Elements - Urine Profile
I, Br, Se, Li, As, Cd, Hg, Crtn

Toxic & Essential Elements - Blood Profile
Zn, Cu, Mg, Se, Cd, Hg

Comprehensive Toxic & Essential Elements Profile
Blood Spot: Zn, Cu, Mg, Se, Cd, Hg
Dried Urine: I, Br, Se, Li, As, Cd, Hg, Crtn

Elite Thyroid Profile - Blood Profile
T4, Tgbn, TSH, fT3, fT4, TPO

URINE METABOLITES

Estrogen Essential Profile
Dried Urine: Estrogens (12), Crtn

Sex Steroid Metabolites Profile
Dried Urine: Estrogens (13), Progestogens (7), Androgens (8), Glucocorticoids (4), Crtn

Sex Steroid Metabolites + UDH II Profile

MENSTRUAL CYCLE MAPPING

Dried Urine: E1G, PDG, LH, Crtn

ADRENAL STRESS

Saliva: DS, Cx4

CORTISOL AWAKENING RESPONSE

Saliva: DS, Cx6

Multiple Testing Options – *Your Choice*

ZRT offers testing in four different test media so you can choose the **best option** for your and your patients' needs. Here is a guide to the merits of each test medium.

ZRT'S MOST IN-DEMAND TESTING OPTION!

SALIVA TESTING

Suitable for:

- Assessing "free" (unbound to carrier proteins) hormone levels
- Monitoring hormone replacement given orally, topically, vaginally or via pellets
- Collecting multiple samples during a day, *e.g.*, determining diurnal cortisol levels for adrenal stress assessment

Not suitable for:

- Monitoring sublingual/troche hormone replacement
- Patients with dry mouth, *e.g.*, due to Sjögren's syndrome

DRIED BLOOD SPOT TESTING

Suitable for:

- Assessing total circulating hormone levels (free plus protein-bound)
- Patients with dry mouth and/or children who may have difficulty collecting saliva
- Monitoring hormone replacement therapy (oral, sublingual, pellet)
- Assessing thyroid health, fertility parameters, and cardiometabolic risk factors

Dried Blood Spot is better for:

- Assessing interstitial tissue/capillary hormone levels reflecting topical or vaginal hormone supplementation
- Toxic and nutritional elements requiring a whole blood sample
- Self-collection of sample at home at a time convenient to the patient and avoiding a trip to the phlebotomist

DRIED URINE TESTING

Suitable for:

- Measuring steroid hormone metabolites, *e.g.*, for breast cancer risk assessment
- Determining toxic element exposure and iodine/selenium sufficiency for thyroid health
- Determining diurnal cortisol production at four time points for stress assessment
- Assessing nocturnal and diurnal melatonin production

Not suitable for:

- Monitoring topical or intravaginal hormone replacement therapy (HRT)

Testing for Steroid Hormone Levels

Today's health care practitioners face the challenge of helping patients cope with hormone imbalance. Accurate testing is the best way to make sure hormone dosing is optimal.

To learn more, visit **www.zrtlab.com/sample-types/hormone-testing-for-different-supplementation-types/**

Our Comprehensive Range of *Test Specialties*

Reproductive Hormone Testing ..... Pages 13-18

Keeping hormones in balance means testing to ensure levels are within physiological, age-appropriate ranges. Our range of testing options covers your assessment needs for menopause, andropause, menstrual health, fertility, and breast cancer risk.

- Saliva Profiles I, II & III
- Female Blood Profiles I & II
- Male Blood Profiles I & II
- Hormone Trio – Saliva Profile
- Hormone Trio – Blood Spot Profile
- Comprehensive Female Profiles I & II
- Comprehensive Male Profiles I & II
- Menstrual Cycle Mapping Profile
- Saliva Steroid LC-MS Profile 7
- Saliva Steroid LC-MS Profile 23
- Estrogen Essential Profile
- Sex Steroid Metabolites Profile
- Sex Steroid Metabolites +UDH II Profile

Adrenal/Stress Testing ..... Page 21

Assessment of diurnal cortisol levels is key to detecting adrenal dysfunction that leads to many stress-related health problems.

- Diurnal Cortisol Profile
- Adrenal Stress Profile
- Cortisol Awakening Response Profile

Thyroid Testing ..... Page 22

Proper thyroid function is essential to maintaining the body's metabolic activity and regulating energy. Our profiles identify overt and subclinical thyroid disease and monitor thyroid replacement. Get a more complete picture with profiles that combine thyroid tests with our other hormone testing or with heavy metals and essential elements tests that affect thyroid health.

- Essential & Elite Thyroid Profiles
- Comprehensive Thyroid Profile
- Comprehensive Female Profiles I & II
- Comprehensive Male Profiles I & II

Heavy Metals & Essential Elements Testing ..... Page 24

Exposure to dangerous heavy metals or insufficiency of nutritional elements affects health profoundly. Testing elements in the most appropriate sample type is important for proper assessment.

- Iodine Panel in Dried Urine
- Toxic & Essential Elements – Urine Profile
- Toxic & Essential Elements – Blood Profile
- Comprehensive Toxic & Essential Elements Profile

Neurotransmitter Testing ..... Page 26

Testing neurotransmitters can help pinpoint imbalances leading to many mood disorders. Choose from our additional Neurotransmitters Profiles to get a more complete picture, giving practitioners a diagnostic edge to help identify treatment options.

- Neurotransmitters Profile
- Neurotransmitters + Saliva Steroids Profile
- Neurotransmitters Profile + Urine Diurnal Hormones (UDH) I Profile
- Neurotransmitters Profile + UDH II Profile
- Neurotransmitters Profile + UDH III Profile
- Neurotransmitters Profile + Saliva Steroids + UDH III Profile

Wellness Testing ..... Pages 29-30

Optimal wellness means getting to grips with modifiable lifestyle factors that can have a big impact on health. Whether assessing vitamin D deficiency, risk factors for CVD and diabetes, barriers to healthy sleep, or hormone imbalances hindering your path to fitness, our profiles offer multiple testing options.

- Weight Management Profile
- Weight Management + Thyroid Profile
- Weight Management + Cardio Profile
- Weight Management + Thyroid + Cardio Profile
- CardioMetabolic Profile
- Urine Diurnal Hormones (UDH) Profiles I, II, & III

Saliva Profiles I, II & III

Three convenient saliva profiles are offered to assess sex and adrenal hormone levels. These profiles test waking levels of estradiol, progesterone, testosterone, DHEA-S, and cortisol, while Profile II includes a bedtime cortisol test and Profile III a full diurnal cortisol profile at four time points during the day (morning, noon, evening, night).

- **Saliva Profile I includes:** E2, Pg, T, DS, C
- **Saliva Profile II includes:** E2, Pg, T, DS, Cx2
- **Saliva Profile III includes:** E2, Pg, T, DS, Cx4

Consider for Women:

Baseline levels before HRT, amenorrhea, PMS, DUB, estrogen dominance symptoms, hypogonadism, sexual dysfunction, osteoporosis, fibrocystic breast disease, infertility screening, PCOS screening, anovulation, menopausal symptoms, screening for adrenal fatigue. Ideal for monitoring HRT dosing.

Consider for Men:

Monitor for estrogen dominance, hypogonadism, andropause, fatigue, low libido, ED, infertility, osteoporosis screening, and adrenal dysfunction.

Female Blood Profiles I & II

Two dried blood spot (DBS) profiles are offered for women: Profile I tests sex and adrenal hormone levels in blood, as an alternative to Saliva Profile I for those women who have difficulty producing enough saliva for testing, or who are using sublingual hormones that might interfere with the saliva test. SHBG is included in the profile so that free (unbound) testosterone can be calculated, since most of the testosterone circulating in the blood is bound to SHBG. Profile II includes the same tests as Profile I with the addition of the Essential Thyroid Profile tests.

- **Female Blood Spot Profile I includes:** E3, E2, E1, Pg, T, SHBG, DS, C
- **Female Blood Spot Profile II includes:** E2, Pg, T, SHBG, DS, C, TSH, fT3, fT4, TPOab

Female Blood Profile I tests the primary female sex hormones and their major binding globulin, and screens for adrenal health through morning cortisol.

Consider for assessment of total baseline levels before HRT, adrenal fatigue, amenorrhea, anovulation, DUB, estrogen dominance symptoms, fibrocystic breast disease, hypogonadism, infertility screening, menopausal symptoms, osteoporosis, PCOS screening, PMS, sexual dysfunction.

Female Blood Profile II is a more comprehensive assessment of hormonal and thyroid imbalances.

Male Blood Profiles I & II

Two DBS profiles are offered for men: Profile I tests sex and adrenal hormone levels in blood, and includes a PSA test to help assess prostate health. Profile II includes the same tests as Profile I with the addition of the Essential Thyroid Profile tests.

- **Male Blood Spot Profile I includes:** E2, E1, Pg, T, PSA, SHBG, DS, C
- **Male Blood Spot Profile II adds:** TSH, fT3, fT4, TPOab

Male Blood Profile I tests the primary male sex hormones and their major binding globulin, and screens for adrenal health through morning cortisol.

Consider for monitoring for estrogen dominance, hypogonadism, andropause, fatigue, low libido, ED, infertility, osteoporosis screening, adrenal dysfunction.

Male Blood Profile II is a more comprehensive assessment of hormonal and thyroid imbalances.

- *Don't need PSA? Select one of the female profiles instead.*

Hormone Trio - Saliva

Combines three of our most popular saliva hormone tests at a lower price than individual tests.

- **Hormone Trio includes:** E2, Pg, T

Consider for Women:

Baseline levels before HRT, amenorrhea, PMS, DUB, estrogen dominance symptoms, hypogonadism, sexual dysfunction, osteoporosis, fibrocystic breast disease, PCOS screening, anovulation, menopausal symptoms. Ideal for monitoring HRT dosing.

Consider for Men:

Monitor for estrogen dominance, hypogonadism, andropause, fatigue, low libido, ED, osteoporosis screening.

Hormone Trio - Blood Spot

Combines three of our most popular hormone tests at a lower price than individual tests.

- **Hormone Trio includes:** E2, Pg, T

Consider for Women:

Baseline levels before HRT, amenorrhea, PMS, DUB, estrogen dominance symptoms, hypogonadism, sexual dysfunction, osteoporosis, fibrocystic breast disease, PCOS screening, anovulation, menopausal symptoms. Ideal for monitoring HRT dosing.

Consider for Men:

Monitor for estrogen dominance, hypogonadism, andropause, fatigue, low libido, ED, osteoporosis screening.

Comprehensive Female Profiles

These profiles include both saliva and DBS tests, and provide a broad assessment of possible hormonal imbalances because they assess sex, adrenal, and thyroid hormone levels. These three hormone systems work in harmony, and an imbalance in one system affects the balance of the others as well. Comprehensive testing allows the health care provider to determine appropriate treatment to restore balance and achieve overall wellness.

- **Comprehensive Female Profile I includes:**
  Saliva: E2, Pg, T, DS, Cx4
  Blood Spot: TSH, fT3, fT4, TPOab
- **Comprehensive Female Profile II includes:**
  Saliva: Cx4
  Blood Spot: E2, total; Pg; T, total; SHBG; DS; TSH; fT3; fT4; TPOab

Comprehensive Female Profile I combines ZRT's popular Salivary Hormone Profile III with our Essential Thyroid Profile tests in DBS.

Comprehensive Female Profile II tests only the diurnal cortisol in saliva, while the sex and thyroid hormones are all tested in DBS. Allows physicians to assess baseline levels before HRT; ideal for monitoring HRT dosing. Full assessment of thyroid health, including screening for hypo or hyperthyroidism, determining Free T4 levels as well as Free T3 levels, testing for autoimmune thyroid disease, and monitoring thyroid replacement dosage.

Consider for:

Amenorrhea, PMS, DUB, estrogen dominance symptoms, hypogonadism, sexual dysfunction, osteoporosis, fibrocystic breast disease, infertility screening, PCOS screening, anovulation, menopausal symptoms, screening for adrenal dysfunction, and thyroid dysfunction.

Comprehensive Male Profiles

These profiles include both saliva and DBS tests, and provide a broad assessment of possible hormonal imbalances because they assess sex, adrenal, and thyroid hormone levels. These three hormone systems work in harmony, and an imbalance in one system affects the balance of the others as well. Comprehensive testing allows the health care provider to determine appropriate treatment to restore balance and achieve overall wellness.

- **Comprehensive Male Profile I includes:**
  Saliva: E2, T, DS, Cx4
  Blood Spot: PSA, TSH, fT3, fT4, TPOab
- **Comprehensive Male Profile II includes:**
  Saliva: Cx4
  Blood Spot: E2, total; T, total; SHBG; DS; PSA; TSH; fT3; fT4; TPOab

Comprehensive Male Profile I combines a male version of ZRT's popular Salivary Hormone Profile III with our Essential Thyroid Profile in DBS. For men, PSA is included instead of the less relevant (for men) salivary progesterone.

Comprehensive Male Profile II tests only the diurnal cortisol in saliva, while the sex and thyroid hormones are all tested in DBS. Allows physicians to monitor for estrogen dominance, hypogonadism, andropause; full assessment of thyroid health, including screening for hypo or hyperthyroidism, determining Free T4 levels as well as Free T3 levels, testing for autoimmune thyroid disease, and monitoring thyroid replacement dosages.

Consider for:

Fatigue, sleep disturbance, decreased cognition, depression, low libido, ED, infertility, loss of bone and muscle mass, weight gain, adrenal and thyroid.

Menstrual Cycle Mapping

This profile offers an assessment of sex hormone and LH patterns throughout a menstrual cycle to help health care providers get to the root of hormone-related menstrual symptoms, irregular cycles, amenorrhea, or infertility. Dried urine testing provides a simple and convenient way to assess fluctuations in daily hormone levels over an entire month, known as menstrual cycle mapping.

- **Menstrual Cycle Mapping includes:**
  Dried Urine: E1G, PDG, LH, Crtn

Consider for:

Consider for women with irregular cycles, cyclic hormone-related symptoms such as PMS or headaches, infertility, or luteal phase defects to identify hormone imbalances that may be contributing to their symptoms

Saliva Steroid LC-MS Profiles

The LC-MS 7-hormone profile duplicates our popular EIA saliva test that ZRT has been running for over 20 years. It evaluates the three primary estrogens, progesterone, androgens and cortisol. It can serve as a baseline test and for monitoring changes following supplementation. The LC-MS 23-hormone profile tests everything in the LCMS 7 profile with additional hormones, metabolites, and medications. This expanded profile is good for more complicated hormonal pictures including PCOS, congenital adrenal hyperplasia, use of 7 keto DHEA supplementation.

- **Saliva Steroid LC-MS Profile 7 includes:**
  E3, E2, E1, Pg, T, DS, C
- **Saliva Steroid LC-MS Profile 23 includes:**
  E3, E2, E1, EE, PregS, Pg, AlloP, 17OHPg, Adione, T, DHT, D, DS, 7keto, 11DC, C, Cn, Ccn, Ald, Mel, ANZ, FIN, LTZ

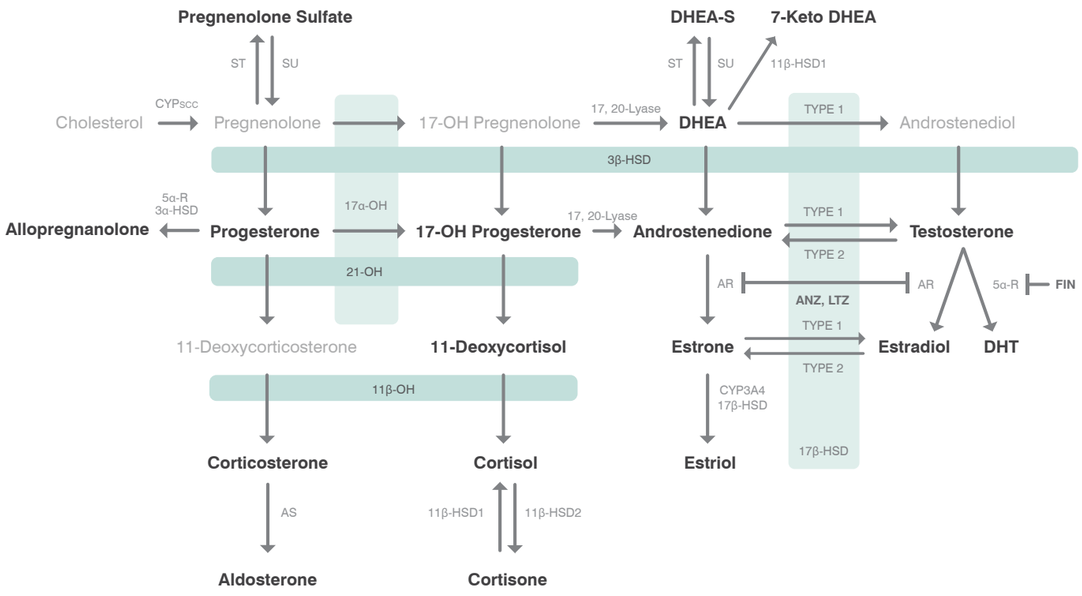
Consider for Women:

Hair loss, acne, PCOS, topical DHEA or 7-keto DHEA supplementation, hormonal birth control users, adrenal dysfunction, or those treated with hormone blockers for breast cancer.

Consider for Men:

Hypogonadism, andropause, BPH, adrenal dysfunction, monitoring hormone supplementation.

Saliva Steroid Cascade



Abbreviation Key

AR - Aromatase
AS - Aldosterone Synthase
ST - Sulfotransferase
SU - Sulfatase

Steroid Synthesis Inhibitors
ANZ - Anastrozole
FIN - Finasteride
LTZ - Letrozole

Also Tested By ZRT

Ethinyl Estradiol
Melatonin

Analytes in bold are reported by ZRT

Saliva Testing Methodology

Some analytes cannot be tested using immunoassays, the methodology used for most of our saliva testing. For that reason, ZRT developed LC-MS Saliva Steroid Profiles using liquid chromatography/tandem mass spectrometry (LC-MS/MS). These profile tests a broad range of bioavailable hormones and hormone metabolites in one convenient saliva sample collection. LC-MS testing allows for accurate reporting of estrogens down to extremely low levels, such as those seen in men, children, and people using aromatase inhibitors, and includes a test for ethinyl estradiol, 3 hormone blockers, and melatonin.

To learn more, visit **www.zrtlab.com/lcms-saliva-steroid-profile/**

Urine Hormone Metabolites Profiles

Urinary hormone metabolites testing provides a unique diagnostic view that no other hormone testing offers. Because it assesses both parent hormones and their corresponding metabolites, it reveals how the body is breaking down key hormones like estrogens, progestogens, androgens, cortisol and melatonin. This testing gives insight into whether we are fully detoxifying our hormones, which is important because some hormones can be carcinogenic if they don't break down properly – leaving us more at risk for a variety of diseases, like cancer.

They include:

- A wide array of estrogen, progesterone, and androgen metabolites useful for assessment of breast cancer risk
- Glucocorticoid metabolites, diurnal free cortisol, and diurnal free cortisone for adrenal assessment
- MT6s to assess sleep/wake cycle dysfunction
- The xenoestrogen BPA

Sex steroid hormone metabolites results are useful for monitoring hormone therapy patients using patches, pellets or injectables.

Estrogen Essential Profile

A baseline view of how a patient is metabolizing estrogens.

Consider for anyone with a personal or family history of estrogen-dependent cancer (*e.g.*, breast cancer).

Sex Steroid Metabolites

A baseline view of sex steroid hormone metabolite levels.

Consider as a baseline assessment for HRT.

Sex Steroid Metabolites + UDH II

Our broadest view of sex steroid hormone metabolite levels and cortisol metabolism, with full diurnal melatonin and BPA.

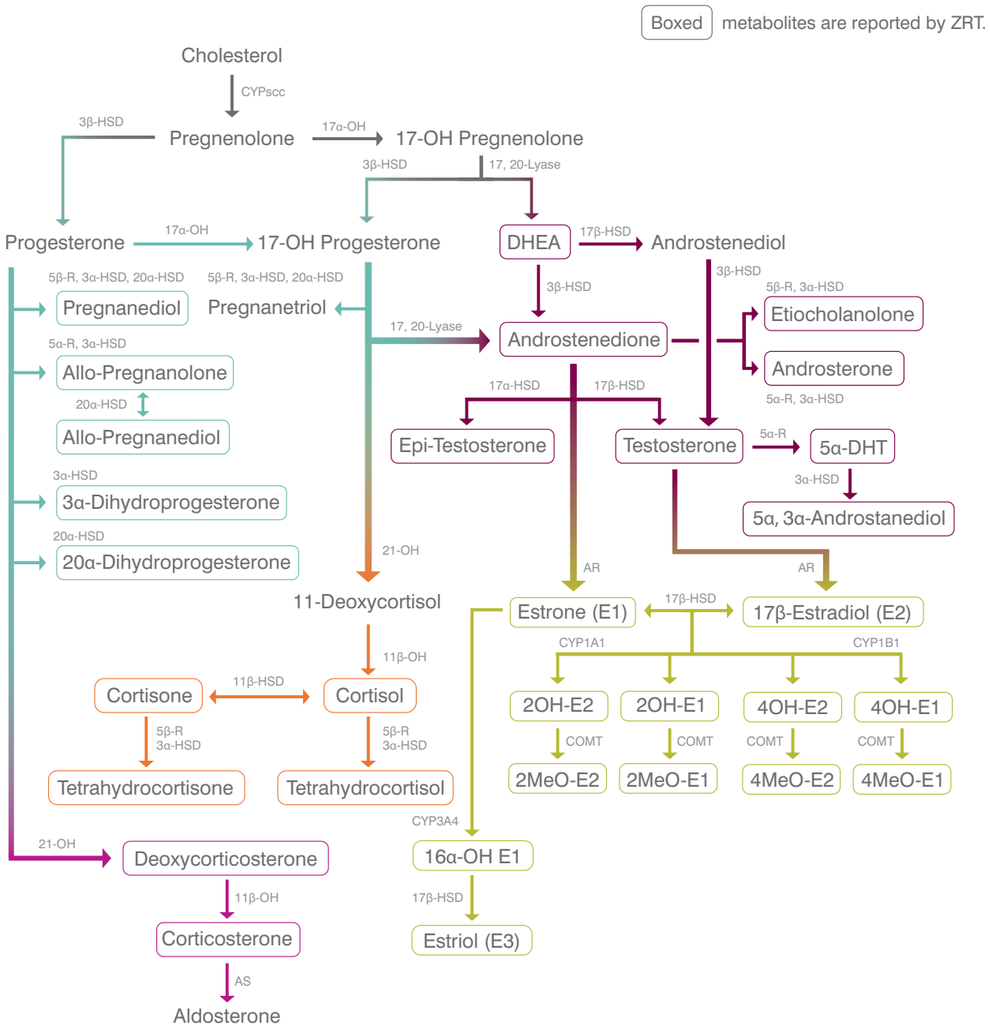
Consider as a comprehensive assessment for patients at risk of breast cancer, patients with symptoms of estrogen/progesterone imbalance, men with prostate problems, and patients who want to assess exposure to BPA. Also beneficial for patients struggling with weight or insulin resistance, who have signs of adrenal dysfunction, or who have sleep problems affecting health.

Urine Hormone Metabolites Profile Options

Analytes	Estrogen Essential	Sex Steroid Metabolites	Sex Steroid Metabolites + UDH II
ESTROGENS			
Estradiol (E2)	●	●	●
Estrone (E1)	●	●	●
Estriol (E3)	●	●	●
2-Hydroxy Estradiol (2-OH E2)	●	●	●
2-Hydroxy Estrone (2-OH E1)	●	●	●
4-Hydroxy Estradiol (4-OH E2)	●	●	●
4-Hydroxy Estrone (4-OH E1)	●	●	●
16α-Hydroxy Estrone (16α-OH E1)	●	●	●
2-Methoxy Estradiol (2-MeO E2)	●	●	●
2-Methoxy Estrone (2-MeO E1)	●	●	●
4-Methoxy Estradiol (4-MeO E2)	●	●	●
4-Methoxy Estrone (4-MeO E1)	●	●	●
Bisphenol A (BPA)		●	●
PROGESTOGENS			
Pregnanediol (Pgdiol)		●	●
Allopregnanolone (AlloP)		●	●
Allopregnanediol (AlloPd)		●	●
3α-Dihydroprogesterone (3αHP)		●	●
20α-Dihydroprogesterone (20αHP)		●	●
Deoxycorticosterone (DOC)		●	●
Corticosterone (Ccn)		●	●
ANDROGENS			
DHEA (D)		●	●
Androstenedione (Adione)		●	●
Androsterone (Andro)		●	●
Etiocholanolone (Etio)		●	●
Testosterone (T)		●	●
Epi-Testosterone (Epi-T)		●	●
5α-Dihydrotestosterone (5α-DHT)		●	●
5α,3α-Androstanediol (5α3α)		●	●
GLUCOCORTICOIDS			
Total Cortisol (TC)		●	●
Free Cortisol x4 (FC x4)			●
Total Cortisone (TCn)		●	●
Free Cortisone x4 (FCn x4)			●
Tetrahydrocortisol (ThC)		●	●
Tetrahydrocortisone (ThCn)		●	●
Melatonin x4 (MT6s x4)			●

Abbreviations in parentheses as they appear on test requisitions and test reports

Steroid Hormone Cascade



Enzyme Abbreviations

- Androgens
- Estrogens
- Glucocorticoids
- Mineralocorticoids
- Progestogens

(5α-R) 5α-Reductase
(5β-R) 5β-Reductase
(11β-OH) 11β-Hydroxylase
(17α-OH) 17α-Hydroxylase
17,20-Lyase (same enzyme as 17α-OH)
(21-OH) 21-Hydroxylase
(3α-HSD) 3α-Hydroxysteroid dehydrogenase
(3β-HSD) 3β-Hydroxysteroid dehydrogenase
(11β-HSD) 11β-Hydroxysteroid dehydrogenase
(17α-HSD) 17α-Hydroxysteroid dehydrogenase
(17β-HSD) 17β-Hydroxysteroid dehydrogenase
(20α-HSD) 20α-Hydroxysteroid dehydrogenase
(AR) Aromatase
(AS) Aldosterone Synthase
(CYP) Cytochrome p450 (scc, 1A1, 1B1 & 3A4)
(COMT) Catechol-O-Methyl-Transferase

Diurnal Cortisol Profile

The full diurnal cortisol profile at four time points during the day.

✔ **Diurnal Cortisol Profile includes:**
Saliva: Cx4

Consider for:
Stress, immune dysfunction, chronic fatigue, and/or multiple symptoms of adrenal imbalance.

Adrenal Stress Profile

The profile tests the adrenal hormones DHEA-S and diurnal cortisol. When individuals experience continuous stress, not only from emotional stressors (*e.g.*, marital, financial, and occupational) but also from physical stressors (*e.g.*, sleep deprivation, caffeine consumption, pain, extreme exercise), it can lead to changes in adrenal hormone levels, related to disorders ranging from anxiety to infertility.

✔ **Adrenal Stress Profile includes:**
Saliva: DS, Cx4

Consider for:
Individuals under stress with multiple symptoms of adrenal imbalance, including immune dysfunction, fatigue, allergies, and sleep disturbances.

Cortisol Awakening Response

The Cortisol Awakening Response – also called CAR – reveals more detailed clues that help in assessing adrenal hormone/HPA axis dysfunction. Six cortisol collections in 24 hours is the most common method for assessing CAR. Start saliva collection within five minutes of waking for the day, followed by a second sample at 30 minutes, and a third sample at 60 minutes. The rest of the diurnal rhythm can be assessed at the normal time intervals – noon, evening and night.

✔ **Cortisol Awakening Response Profile includes:**
Saliva: DS, Cx6

Consider for:
PTSD, major depression, chronic fatigue syndrome and other severe stress conditions.

Essential & Elite Thyroid Profiles

Thyroid dysfunction can explain a wide variety of symptoms because of the central role of thyroid hormones in directing the metabolic activity of cells. A properly regulated thyroid is essential to a wide array of biochemical processes in the body. These profiles can help detect both overt and subclinical thyroid disease, as well as monitor thyroid replacement therapy.

- **Available in Dried Blood Spot**
- **Essential Thyroid Profile includes:** TSH, fT3, fT4, TPOab
- **Elite Thyroid Profile includes:** T4, Tgbn, TSH, fT3, fT4, TPOab

Essential Thyroid Profile provides assessment of thyroid health, including screening for hypo- or hyperthyroidism, determining Free T4 and Free T3 levels, testing for autoimmune thyroid disease, and monitoring thyroid replacement dosages.

Elite Thyroid Profile adds an indicator of low iodine status and total T4 production by the thyroid gland.

Consider for:

Alopecia, anxiety, arthralgias, constipation, depression, fatigue, Hashimoto's disease, hyperlipidemia, hypertension, infertility, menstrual disorders (DUB, amenorrhea), mood disorders, obesity, sleep disorders, and weight issues.

Comprehensive Thyroid Profile

This profile combines ZRT's innovative Toxic & Essential Elements - Urine Profile with thyroid testing in DBS for a more comprehensive thyroid assessment.

- **Comprehensive Thyroid Profile includes:**
  Dried Urine: Iodine, Selenium, Bromine, Lithium, Arsenic, Cadmium, Mercury
  Blood Spot: T4, Tgbn, TSH, fT3, fT4, TPOab

Comprehensive Thyroid Profile allows providers to see if an individual has too little, or too much, iodine and selenium, and/or exposure to the iodine/selenium antagonists bromine, arsenic, and mercury; full assessment of thyroid health, including screening for hypo or hyperthyroidism, determines Free T4 and Free T3 levels, testing for autoimmune thyroid disease, and monitoring thyroid replacement dosages.

Consider for:

Patients with thyroid dysfunction coupled with concerns about toxic element exposure and iodine/selenium deficiency's impact on T4 to T3 conversion.

Comprehensive Female Profiles

These profiles include both saliva and DBS tests, and provide a broad assessment of possible hormonal imbalances because they assess sex, adrenal, and thyroid hormone levels. These three hormone systems work in harmony, and an imbalance in one system affects the balance of the others as well. Comprehensive testing allows the health care provider to determine appropriate treatment to restore balance and achieve overall wellness.

- **Comprehensive Female Profile I includes:**
  Saliva: E2, Pg, T, DS, Cx4
  Blood Spot: TSH, fT3, fT4, TPOab
- **Comprehensive Female Profile II includes:**
  Saliva: Cx4
  Blood Spot: E2, total; Pg; T, total; SHBG; DS; TSH; fT3; fT4; TPOab

Comprehensive Female Profile I combines ZRT's popular Salivary Hormone Profile III with our Essential Thyroid Profile tests in DBS.

Comprehensive Female Profile II tests only the diurnal cortisol in saliva, while the sex and thyroid hormones are all tested in DBS. Allows physicians to assess baseline levels before HRT; ideal for monitoring HRT dosing. Full assessment of thyroid health, including screening for hypo or hyperthyroidism, determining Free T4 levels as well as Free T3 levels, testing for autoimmune thyroid disease, and monitoring thyroid replacement dosage.

Consider for:

Amenorrhea, PMS, DUB, estrogen dominance symptoms, hypogonadism, sexual dysfunction, osteoporosis, fibrocystic breast disease, infertility screening, PCOS screening, anovulation, menopausal symptoms, screening for adrenal fatigue, and thyroid dysfunction.

Comprehensive Male Profiles

These profiles include both saliva and DBS tests, and provide a broad assessment of possible hormonal imbalances because they assess sex, adrenal, and thyroid hormone levels. These three hormone systems work in harmony, and an imbalance in one system affects the balance of the others as well. Comprehensive testing allows the health care provider to determine appropriate treatment to restore balance and achieve overall wellness.

- **Comprehensive Male Profile I includes:**
  Saliva: E2, T, DS, Cx4
  Blood Spot: PSA, TSH, fT3, fT4, TPOab
- **Comprehensive Male Profile II includes:**
  Saliva: Cx4
  Blood Spot: E2, total; T, total; SHBG; DS; PSA; TSH; fT3; fT4; TPOab

Comprehensive Male Profile I combines a male version of ZRT's popular Salivary Hormone Profile III with our Essential Thyroid Profile in DBS. For men, PSA is included instead of the less relevant (for men) salivary progesterone.

Comprehensive Male Profile II tests only the diurnal cortisol in saliva, while the sex and thyroid hormones are all tested in DBS. Allows providers to monitor for estrogen dominance, hypogonadism, andropause; full assessment of thyroid health, including screening for hypo or hyperthyroidism, determining Free T4 levels as well as Free T3 levels, testing for autoimmune thyroid disease, and monitoring thyroid replacement dosages.

Consider for:

Fatigue, sleep disturbance, decreased cognition, depression, low libido, ED, infertility, loss of bone and muscle mass, weight gain, adrenal and thyroid dysfunction.

Iodine Panel in Dried Urine

Iodine deficiency can reduce thyroid hormone synthesis, leading to hypothyroidism. Conversely, too much iodine consumption can also cause thyroid problems. Iodine testing allows for determination of iodine status based on CDC and WHO guidelines for thyroid as well as extra-thyroidal sufficiency.

✔ **Iodine Panel includes:**
Dried Urine: Iodine

Iodine Panel allows providers to see if an individual has too little, or too much, of the essential nutrient iodine.

Consider for:
Patients with thyroid issues.

- *Creatinine is measured in all samples to correct results for urine dilution.*

Toxic & Essential Elements - Urine

Iodine is an essential component of T3 and T4, so its deficiency has a serious impact on thyroid hormone synthesis, while selenium is a component of the selenoproteins, including the deiodinases that convert inactive T4 to active T3, and glutathione peroxidase, an important antioxidant. Arsenic and mercury reduce selenium's bioavailability and disrupt thyroid health. Arsenic, mercury, and cadmium represent three of the four most toxic heavy metals according to the CDC. Lithium is important for brain health in trace amounts but is toxic when used in excessive amounts pharmacologically.

✔ **Toxic & Essential Elements - Urine includes:**
Iodine, Selenium, Bromine, Lithium, Arsenic, Cadmium, Mercury

Toxic & Essential Elements - Urine allows providers to see if an individual has too little, or too much, of the essential nutrients iodine and selenium or the trace elements bromine and lithium, or if they have been exposed to too much of the toxic elements arsenic, mercury, and cadmium.

Consider for:
Smokers, patients at risk of exposure to toxic heavy metals, or patients with thyroid issues and/or possible disruption of T4 to T3 conversion due to excesses or deficiencies of the elements tested.

- *Creatinine is measured in all samples to correct results for urine dilution.*

Toxic & Essential Elements - Blood

Essential elements are only conducive to optimal health when they are within optimal ranges – levels that are too low or too high can have detrimental effects on health – and exposure to toxic heavy metals has multiple adverse health effects. DBS testing represents red blood cell levels of the nutritional elements magnesium, zinc, and copper, revealing deficiencies earlier than a typical serum test.

✔ **Toxic & Essential Elements - Blood includes:**
Mercury, Cadmium, Zinc, Copper, Selenium, Magnesium

Toxic & Essential Elements - Blood Profile assesses an individual's levels of the essential nutrients zinc, copper, selenium, and magnesium, and their exposure to the toxic heavy metals mercury and cadmium.

Consider for:
Smokers; patients with exposure to toxic heavy metals through hobbies, work, or dentistry; people who live or have lived in older homes or areas where metals may be present in drinking water; and patients whose health issues could be a result of nutritional deficiencies or imbalances in essential elements.

Comprehensive Toxic & Essential Elements

We are all exposed to different amounts of essential and toxic elements depending on where we live, our diet and supplementation routine, and environmental pollution of the air we breathe. Essential elements are only conducive to optimal health when they are within optimal ranges – levels that are too low or too high can have detrimental effects on health – and exposure to toxic heavy metals has multiple adverse health effects. The comprehensive profile allows a complete assessment of the most important elements implicated in health-related effects, as it includes a measure of both short- and long- term exposure to all four of the most toxic environmental heavy metals, as well as highlighting nutritional element deficiencies earlier than a typical serum test.

✔ **Comprehensive Toxic & Essential Elements Profile includes:**
Dried Urine: Iodine, Selenium, Bromine, Lithium, Arsenic, Cadmium, Mercury
Blood Spot: Mercury, Cadmium, Zinc, Copper, Selenium, Magnesium

Comprehensive Toxic & Essential Elements Profile assesses an individual's levels of the essential nutrients iodine, selenium, zinc, copper, magnesium, lithium, and bromine, and their exposure to the toxic elements arsenic, cadmium, and mercury.

Consider for:
Smokers; patients with exposure to toxic heavy metals through hobbies, work, or dentistry; people who live or have lived in older homes or areas where metals may be present in drinking water; and patients whose health issues could be a result of nutritional deficiencies or imbalances in essential elements.

- *Creatinine is measured in all samples to correct results for urine dilution.*

Neurotransmitters

The neurotransmitter test provides a framework for understanding the connection of our body's physical health to our brain's well-being. In a nutshell, it is an effective advanced screening tool designed to gather information about the levels of specific neurotransmitters, amino acid precursors, and metabolites originating in various organs throughout the body. These molecules convey messages to the brain either directly by crossing the blood-brain barrier, indirectly via the nerves of the enteric nervous system, or the vagus nerve itself. The levels of these molecules, determined by the neurotransmitter test (too low, too high, or just right, *i.e.*, within range), are as individual as each individual patient, reflective of that person's own ecosystem (genes + lifestyle + environment).

Discovering the detailed interplay between neurotransmitters and perhaps other endocrine signaling molecules, has helped fortify our understanding of how biological function in the body influences brain health. The results of the test provide a biochemical basis that helps explain mental health-related symptoms the patient is suffering from and enable the practitioner to move forward with creating a highly individualized therapeutic intervention, usually based on a combination of lifestyle and dietary changes that include personalized nutritional intervention strategies (*e.g.*, methylation support, antioxidants, targeted amino acids, vitamins + minerals, adaptogens, etc.).

This test is a great example of how complementary medicine tackles the notion of "chemical imbalance" from something hypothetical, subjective, and rather elusive; to quantifiable, objective and, more importantly, therapeutically actionable.

- **Neurotransmitter Profile includes:**
  Dried Urine: GABA, Glu, Gly, DA, Epi, NE, HIST, 5-HT, PEA, DOPAC, HVA, 5-HIAA, NMN, VMA Trp, Kyn, 3-OHkyn, Tau, Gln, His, N-MeHist, Tyra, KynAc, Xanth, Tyr, Crtn
- **Neurotransmitters + Saliva Steroids Profile includes:**
  Dried Urine: GABA, Glu, Gly, DA, Epi, NE, HIST, 5-HT, PEA, DOPAC, HVA, 5-HIAA, NMN, VMA Trp, Kyn, 3-OHkyn, Tau, Gln, His, N-MeHist, Tyra, KynAc, Xanth, Tyr, Crtn
  Saliva: E2, Pg, T, DS, C
- **Neurotransmitters + UDH I Profile includes:**
  Dried Urine: GABA, Glu, Gly, DA, Epi, NE, HIST, 5-HT, PEA, DOPAC, HVA, 5-HIAA, NMN, VMA, Trp, Kyn, 3-OHKyn, Tau, Gln, His, N-MeHist, Tyra, KynAc, Xanth, Tyr, Free Cortisol x 4, Free Cortisone x 4, Crtn
- **Neurotransmitters + UDH II Profile includes:**
  Dried Urine: GABA, Glu, Gly, DA, Epi, NE, HIST, 5-HT, PEA, DOPAC, HVA, 5-HIAA, NMN, VMA, Trp, Kyn, 3-OHKyn, Tau, Gln, His, N-MeHist, Tyra, KynAc, Xanth, Tyr, Free Cortisol x 4, Free Cortisone x 4, Melatonin (MT6s) x 4, Crtn
- **Neurotransmitters + UDH III Profile includes:**
  Dried Urine: GABA, Glu, Gly, DA, Epi, NE, HIST, 5-HT, PEA, DOPAC, HVA, 5-HIAA, NMN, VMA, Trp, Kyn, 3-OHKyn, Tau, Gln, His, N-MeHist, Tyra, KynAc, Xanth, Tyr, Free Cortisol x 4, Free Cortisone x 4, Melatonin (MT6s) x 4, NE x 4, Epi x 4, Crtn
- **Neurotransmitters + Saliva Steroids + UDH III Profile includes:**
  Dried Urine: Trp, 5-HT, 5-HIAA, GABA, Gly, Tau, Glu, Gln, His, HIST, N-MeHist, PEA, Tyr, Tyra, DA, DOPAC, HVA, NE(x5), NMN, Epi(x5), VMA, Kyn, KynAc, 3OHKyn, Xanth, Crtn(x5), FC(x4), FCn(x4)
  Saliva: E2, Pg, T, DS, C |

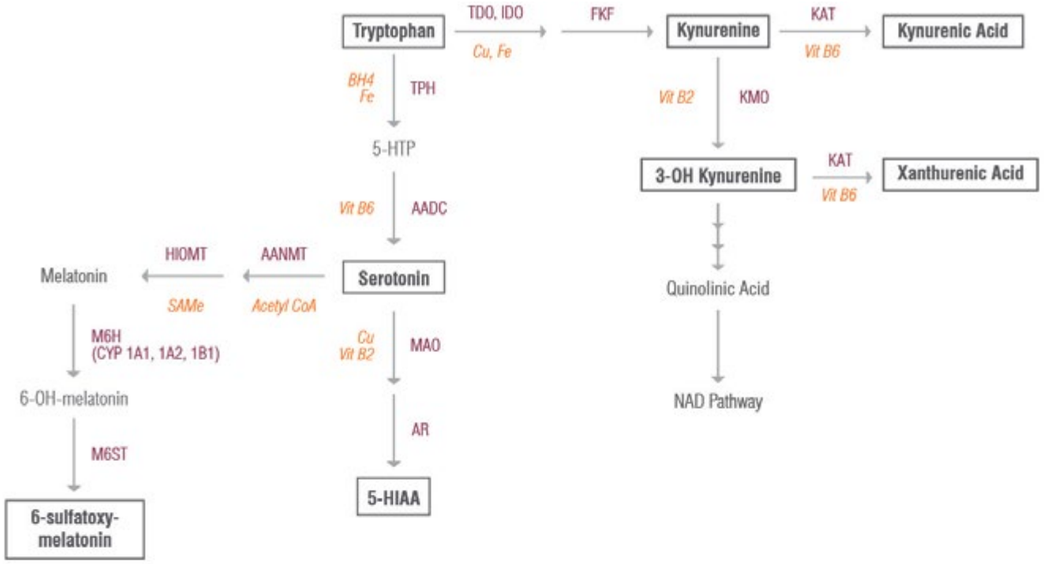
Consider for:

Testing neurotransmitters in patients with a suspected neurochemical imbalance can help assess individual biochemistry and get to the root of persistent issues such as:

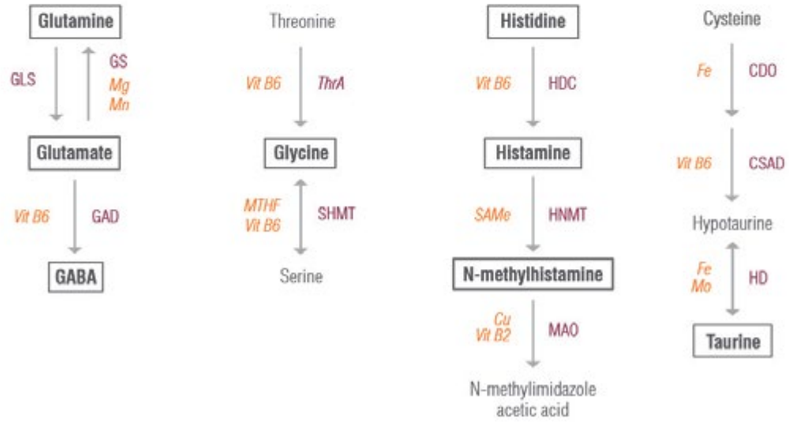
- Mood/affective disorders
- Adrenal dysfunction
- Addictive behaviors
- Sleep problems
- ADD/ADHD or OCD
- PMS/PMDD

▸ *Creatinine is measured in all samples to correct results for urine dilution.*

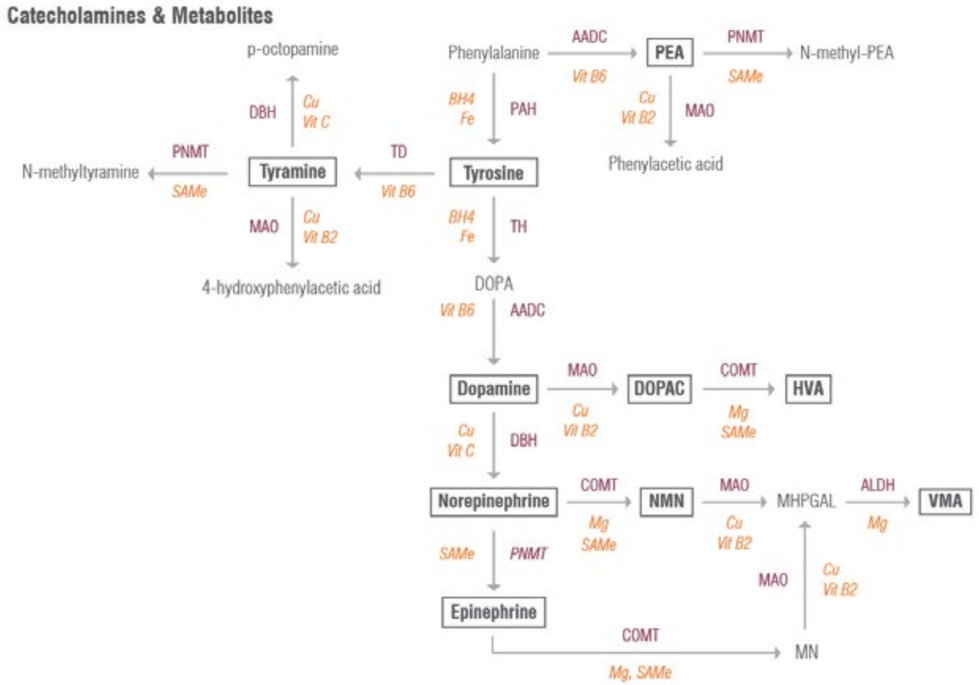
Neurotransmitter Cascades



Glutamate/GABA, Glycine, Histamine & Taurine



Catecholamines & Metabolites



Abbreviations & Key

Neurotransmitters & Metabolites:

HVA	homovanillic acid
NMN	normetanephrine
PEA	phenethylamine
VMA	vanillylmandelic acid
5-HIAA	5-hydroxyindole 3-acetic acid

Cofactors:

BH4	tetrahydrobiopterin
Cu	copper
Fe	iron
Mg	magnesium
Mn	manganese
Mo	molybdenum
MTHF	methyltetrahydrofolate
SAMe	S-adenosyl methionine

Enzymes:

AADC	aromatic L-amino acid decarboxylase
AANMT	arylalkylamine N-methyltransferase
ALDH	aldehyde dehydrogenase
AR	aldehyde reductase
CDO	cysteine dioxygenase
COMT	catechol-O-methyltransferase
CSAD	cysteinesulfinic acid decarboxylase
DBH	dopamine beta hydroxylase
FKF	N-Formyl kynurenine formamidase
GAD	glutamate decarboxylase
GLS	glutaminase
GS	glutamine synthetase
HD	hypotaurine dehydrogenase
HDC	histidine decarboxylase
HIOMT	hydroxyindole-O-methyltransferase
HNMT	histamine N-methyltransferase
IDO	indoleamine 2,3-dioxygenase
KAT	kynurenine aminotransferase
KMO	kynurenine hydroxylase/monooxygenase
MAO	monoamine oxidase
M6H	melatonin 6 hydroxylase
M6ST	melatonin 6 sulfotransferase
PAH	phenylalanine hydroxylase
PNMT	phenylethanolamine N-methyltransferase
SHMT	serine hydroxymethyltransferase
TD	tyrosine decarboxylase
TDO	tryptophan 2,3-dioxygenase
TH	tyrosine hydroxylase
ThrA	threonine aldolase
TPH	tryptophan hydroxylase

TEST SPECIALTIES | NEUROTRANSMITTER CASCADES

Weight Management

The Weight Management Profile identifies hormonal imbalances that contribute to obesity, weight gain, and difficulty losing or sustaining a healthy weight. Used as a screening tool, it serves as an early indicator of insulin resistance and risks for metabolic syndrome and diabetes.

- **Weight Management Profile includes:**
  Saliva: E2, Pg, T, DS, Cx4
  Blood Spot: TSH, Vitamin D2/D3, Insulin, HbA1c
- **Weight Managemen + Thyroid Profile includes:**
  Saliva: E2, Pg, T, DS, Cx4
  Blood Spot: TSH, Vitamin D2/D3, Insulin, HbA1c, fT3, fT4, TPOab
- **Weight Management + Cardio Profile includes:**
  Saliva: E2, Pg, T, DS, Cx4
  Blood Spot: TSH, Vitamin D2/D3, Insulin, HbA1c, hsCRP,TG, CH, LDL, VLDL, HDL
- **Weight Management +Thyroid + Cardio Profile includes:**
  Saliva: E2, Pg, T, DS, Cx4
  Blood Spot: TSH, Vitamin D2/D3, Insulin, HbA1c, fT3, fT4, TPOab, hsCRP, TG, CH, LDL, VLDL, HDL

Weight Management Profile allows physicians to isolate specific imbalances of one or more hormones that contribute to weight gain, slowed metabolism, increased body fat deposition, and food/sugar cravings. Facilitates correction of imbalances for weight control, and risks for cardiometabolic disease and diabetes.

Consider for Women:
With premenstrual weight gain and fluid retention; perimenopausal and/or menopausal weight gain in hips/thigh, and/or inability to lose/tendency to regain weight, midsection weight gain, PCOS, adrenal and thyroid dysfunction; breast cancer risks.

Consider for Men:
With andropausal weight gain in hips/thighs (female fat distribution pattern) and/or inability to lose/tendency to regain weight, midsection weight gain, adrenal and thyroid dysfunction; prostate cancer risks.

CardioMetabolic Profile

This profile, entirely in DBS collected after an overnight fast, allows early detection of major indicators associated with metabolic/insulin resistance syndrome. As a screening profile it can facilitate appropriate treatment to reduce type 2 diabetes and CVD risks.

- **CardioMetabolic Profile includes:**
  Blood Spot: Insulin, hsCRP, HbA1c, TG, CH, HDL, LDL, VLDL

Consider for:
Atherosclerosis, CVD, type 2 diabetes, dyslipidemia, hypertension, infertility, insulin resistance, metabolic syndrome, obesity, PCOS, weight issues.

Urinary Diurnal Hormones

ZRT developed the technique of using urine strips for a circadian rhythm collection of hormones. Each collection period ends at the timepoint that starts when a patient last urinated. Thus, a morning collection reflects night cortisol, the second morning collection reflects morning awakening, the evening collection reflects the afternoon, and the nighttime reflects evening. Urine allows a broad assessment of multiple hours averaged and then is used for the circadian rhythm. For some testing, the four strips can be pooled together for the equivalent of a 24-hour assessment of hormones. Urinary adrenal hormones including cortisol, cortisone, epinephrine, norepinephrine and the hormone melatonin can be assessed as a urine diurnal rhythm.

- **UDH I Profile includes**
  Dried Urine: Free Cortisol x 4, Free Cortisone x 4, Crtn
- **UDH II Profile includes**
  Dried Urine: Free Cortisol x 4, Free Cortisone x 4, Melatonin (MT6s) x 4, Crtn
- **UDH III Profile includes**
  Dried Urine: Free Cortisol x 4, Free Cortisone x 4, Melatonin (MT6s) x 4, NE x 4, Epi x 4, Crtn

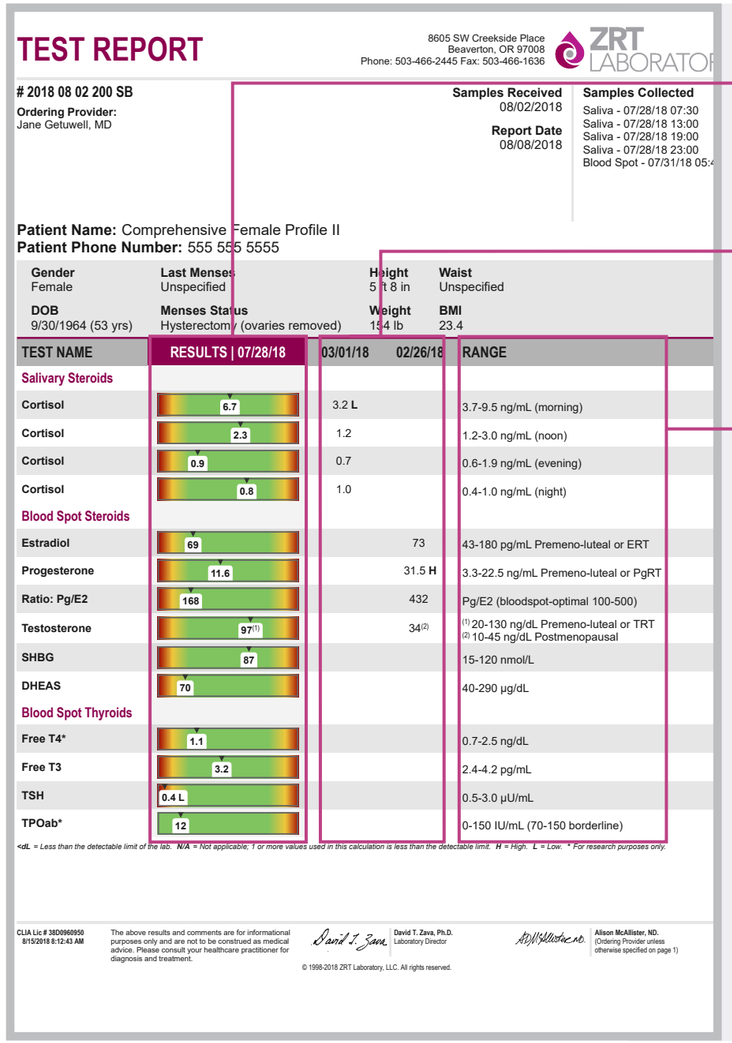
Consider for:
Fatigue, sleep disorders, inflammatory issues, depression, blood sugar dysfunction. panic attacks, weight gain.

- *Creatinine is measured in all samples to correct results for urine dilution.*

Understanding ZRT's Test Reports

ZRT's test reports are the most comprehensive results available anywhere.

Patient test results are a comprehensive review of their tested levels in correlation with reported symptoms, hormone usage (if applicable) and menstrual history in women. Each test result is individually reviewed to produce a complete report with descriptive comments added by licensed physicians on staff.



TEST REPORT

8605 SW Creekside Place
Beaverton, OR 97008
Phone: 503-466-2445 Fax: 503-466-1636

ZRT LABORATORY

2018 08 02 200 SB
Ordering Provider:
Jane Getuwell, MD

Samples Received 08/02/2018
Report Date 08/08/2018

Samples Collected
Saliva - 07/28/18 07:30
Saliva - 07/28/18 13:00
Saliva - 07/28/18 19:00
Saliva - 07/28/18 23:00
Blood Spot - 07/31/18 05:4

Patient Name: Comprehensive Female Profile II
Patient Phone Number: 555 555 5555

Gender	Last Menses	Height	Waist
Female	Unspecified	5 ft 8 in	Unspecified
DOB	**Menses Status**	**Weight**	**BMI**
9/30/1964 (53 yrs)	Hysterectomy (ovaries removed)	154 lb	23.4

TEST NAME	RESULTS | 07/28/18	03/01/18	02/26/18	RANGE
Salivary Steroids				
Cortisol	6.7	3.2 L		3.7-9.5 ng/mL (morning)
Cortisol	2.3	1.2		1.2-3.0 ng/mL (noon)
Cortisol	0.9	0.7		0.6-1.9 ng/mL (evening)
Cortisol	0.8	1.0		0.4-1.0 ng/mL (night)
Blood Spot Steroids				
Estradiol	69		73	43-180 pg/mL Premeno-luteal or ERT
Progesterone	11.6		31.5 H	3.3-22.5 ng/mL Premeno-luteal or PgRT
Ratio: Pg/E2	168		432	Pg/E2 (bloodspot-optimal 100-500)
Testosterone	97(1)		34(2)	(1) 20-130 ng/dL Premeno-luteal or TRT (2) 10-45 ng/dL Postmenopausal
SHBG	87			15-120 nmol/L
DHEAS	70			40-290 µg/dL
Blood Spot Thyroids				
Free T4*	1.1			0.7-2.5 ng/dL
Free T3	3.2			2.4-4.2 pg/mL
TSH	0.4 L			0.5-3.0 µU/mL
TPOab*	12			0-150 IU/mL (70-150 borderline)

*<dL = Less than the detectable limit of the lab. N/A = Not applicable; 1 or more values used in this calculation is less than the detectable limit. H = High. L = Low. * For research purposes only.*

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The above results and comments are for informational purposes only and are not to be construed as medical advice. Please consult your healthcare practitioner for diagnosis and treatment.

David T. Zava, Ph.D.
Laboratory Director

Alison McAllister, ND.
(Ordering Provider unless otherwise specified on page 1)

Results

Results for each test are shown on a color-coded slider.

- Outside the Range
- High/Low Normal
- Within Range

ZRT is one of the few labs able to show historical test results, if available. These results are displayed directly next to the current results, so it's easy to see changes over time.

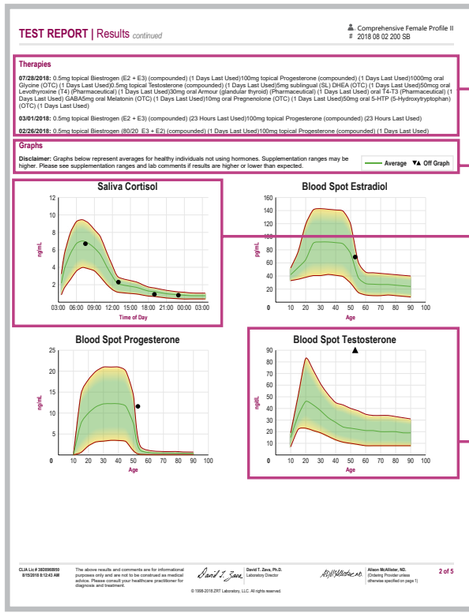
ZRT reports the normal/ expected range of each marker tested.

Note: If applicable, optimal ranges are provided.

Reference ranges are observed ranges based on collected laboratory data. Unlike other labs, patients do not need to stop hormone supplementation to use ZRT's testing because we have ranges adjusted for age, menstrual status, and supplementation types. This is the ideal method for tracking the effectiveness of hormone treatments.

Providers can opt to show all reference ranges for the tests included on a separate page of the report.

Test results are generally available 5-7 business days after samples are received at the lab.



TEST REPORT | Results *continued*

Comprehensive Female Profile II
2018 08 02 200 SB

Therapies

07/28/2018: 0.5mg topical Biestrogen (E2 + E3) (compounded) (1 Days Last Used)100mg topical Progesterone (compounded) (1 Days Last Used)1000mg oral Glycine (OTC) (1 Days Last Used)0.5mg topical Testosterone (compounded) (1 Days Last Used)5mg sublingual (SL) DHEA (OTC) (1 Days Last Used)50mcg oral Levothyroxine (T4) (Pharmaceutical) (1 Days Last Used)30mg oral Armour (glandular thyroid) (Pharmaceutical) (1 Days Last Used) oral T4-T3 (Pharmaceutical) (1 Days Last Used) GABA5mg oral Melatonin (OTC) (1 Days Last Used)10mg oral Pregnenolone (OTC) (1 Days Last Used)50mg oral 5-HTP (5-Hydroxytryptophan) (OTC) (1 Days Last Used)

03/01/2018: 0.5mg topical Biestrogen (E2 + E3) (compounded) (23 Hours Last Used)100mg topical Progesterone (compounded) (23 Hours Last Used)

02/26/2018: 0.5mg topical Biestrogen (80/20 E3 + E2) (compounded) (1 Days Last Used)100mg topical Progesterone (compounded) (1 Days Last Used)

Graphs

Disclaimer: Graphs below represent averages for healthy individuals not using hormones. Supplementation ranges may be higher. Please see supplementation ranges and lab comments if results are higher or lower than expected.

Average ▾▲ Off Graph

Saliva Cortisol

Blood Spot Estradiol

Blood Spot Progesterone

Blood Spot Testosterone

2 of 5

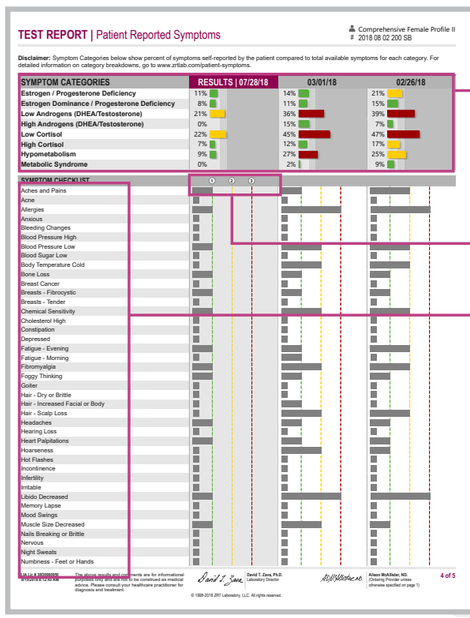
Graphs & Therapies

ZRT reports display patient-provided supplementation information (hormone, dose, delivery, timing).

Graphs show reported levels by age or time to assist interpretation.

For hormones that vary by time of day like cortisol and melatonin, the graph shows the range as it changes over the course of a day and the test results are plotted on the graph according to the actual time of day the sample was collected. Ranges within the graphs are color-coded to show the degree of variation from the center of the normal range.

For hormones that vary in level with age, reports include graphs based on our database of testers not using hormone supplementation, showing the variation in levels with age. The test result is marked on each graph to indicate where the result falls in relation to the observed range for the tester's actual age.



TEST REPORT | Patient Reported Symptoms

Comprehensive Female Profile II
2018 08 02 200 SB

Disclaimer: Symptom Categories below show percent of symptoms self-reported by the patient compared to total available symptoms for each category. For detailed information on category breakdowns, go to www.zrtlab.com/patient-symptoms.

SYMPTOM CATEGORIES	RESULTS | 07/28/18	03/01/18	02/26/18
Estrogen / Progesterone Deficiency	11%	14%	21%
Estrogen Dominance / Progesterone Deficiency	8%	11%	15%
Low Androgens (DHEA/Testosterone)	21%	36%	39%
High Androgens (DHEA/Testosterone)	0%	15%	7%
Low Cortisol	22%	45%	43%
High Cortisol	7%	12%	17%
Hypometabolism	9%	27%	25%
Metabolic Syndrome	0%	2%	9%

SYMPTOM CHECKLIST

Aches and Pains
Acne
Allergies
Anxious
Bleeding Changes
Blood Pressure High
Blood Pressure Low
Blood Sugar Low
Body Temperature Cold
Bone Loss
Breast Cancer
Breasts - Fibrocystic
Breasts - Tender
Chemical Sensitivity
Cholesterol High
Constipation
Depressed
Fatigue - Evening
Fatigue - Morning
Fibromyalgia
Foggy Thinking
Goiter
Hair - Dry or Brittle
Hair - Increased Facial or Body
Hair - Scalp Loss
Headaches
Hearing Loss
Heart Palpitations
Hoarseness
Hot Flashes
Incontinence
Infertility
Irritable
Libido Decreased
Memory Lapse
Mood Swings
Muscle Size Decreased
Nails Breaking or Brittle
Nervous
Night Sweats
Numbness - Feet or Hands

4 of 5

Symptoms

Patient symptoms are summarized into eight hormone imbalance conditions and scored with ● red, ● yellow or ● green bars to indicate severity.

Symptoms rated mild (1), moderate (2) or severe (3).

Sixty-eight symptoms, self-reported by the patient on the test requisition.

Please refer to our Symptom Guide available at **www.zrtlab.com** for details about symptom categories.

Comments *(not pictured)*

Individualized comments correlate lab results, symptoms, and hormone usage (if applicable). ZRT providers can choose to include their professional comments in addition to, or in lieu of, the lab comments. The Comments page is a thorough explanation that provides a better understanding of tested levels in relation to intensity of self-reported symptoms (mild, moderate, severe), menstrual history in women, and supplementation at the time of testing. The self-reported symptoms do not influence lab results, but are included in the individualized comments as they relate back to lab results.

UNDERSTANDING ZRT'S TEST REPORTS

Directory of Tests

Saliva, blood spot and dried urine are used for the minimally-invasive hormone testing that is the hallmark of ZRT Laboratory. The simplicity of sample collection and stability of samples in storage and transport have made these ideal for clinical use as well as research. See the table for a list of all our tests and assay methods used.

TESTS	CPT CODE	SALIVA	BLOOD SPOT	DRIED URINE
Steroid Hormone Testing				
Estradiol (E2)**	82670	EIA/LCMS	LCMS	GCMS
2-OH E2, 4-OH E2, 2-MeO E2, 4-MeO E2	82670			GCMS
Estriol (E3)	82677	LCMS	LCMS	GCMS
Estrone (E1)	82679	LCMS	LCMS	GCMS
2-OH E1, 4-OH E1, 16α-OH E1, 2-MeO E1, 4-MeO E1	82679			GCMS
Estrone-3-Glucuronide (E1G)	82679			EIA
Pregnenolone sulfate (PregS)	84140	LCMS		
Progesterone (Pg)**	84144	EIA/LCMS	LCMS	
Pregnanediol (Pgdiol), Allopregnanediol (AlloPd)	84135			GCMS
Pregnanediol-3-Glucuronide (PDG)	84135			EIA
Allopregnanolone (AlloP)	84140	LCMS		GCMS
17-OH Progesterone (17OHPg)	83498	LCMS		
3α-dihydroprogesterone (3αHP)	84144			GCMS
20α-dihydroprogesterone (20α-HP)	83498			GCMS
11-Deoxycorticosterone (DOC)	82633			GCMS
Androstenedione (Adione)	82157	LCMS		GCMS
Testosterone (T)**	84402	LIA/LCMS		
Testosterone (T)**	84403		LCMS	GCMS
Epi-testosterone (Epi-T)	82542			GCMS
5α-dihydrotestosterone (5α-DHT)	82642	LCMS		GCMS
DHEA (D)	82626	LCMS		GCMS
DHEA-S (DS)	82627	EIA/LCMS	LCMS	
7-Keto DHEA (7keto)	82542	LCMS		
Etiocholanolone (Etio)	82696			GCMS
Androsterone (Andro)	82160			GCMS
5α,3α-Androstanediol (5α,3α)	82154			GCMS
11-Deoxycortisol (11DC)	82634	LCMS		
Cortisol (C)**	82530	EIA/LCMS		
Cortisol (C)**	82533		LCMS	
Free Cortisol (FC)	82530			LCMS
Total Cortisol (TC)	82533			GCMS
Cortisone (Cn)	82530	LCMS		
Free Cortisone (FCn)	82530			LCMS
Total Cortisone (TCn)	82533			GCMS
Tetrahydrocortisol (ThC), Tetrahydrocortisone (ThCn)	83491			GCMS
Corticosterone (Ccn)	82528	LCMS		GCMS
Aldosterone (Ald)	82088	LCMS		
Hormone-Related Testing				
Bisphenol A (BPA)	82542			GCMS
Ethinyl estradiol (EE)	82670	LCMS		
Melatonin (Mel)	82542	LCMS		
Melatonin (MT6s)	82542			LCMS
Sex hormone binding globulin (SHBG)	84270		LIA	
Prostate-Specific Antigen (PSA)	84153		LIA	
Anastrozole (ANZ)	82542	LCMS		
Finasteride (FIN)	82542	LCMS		
Letrozole (LTZ)	82542	LCMS		

TESTS	CPT Code	SALIVA	BLOOD SPOT	DRIED URINE
Luteinizing Hormone (LH)	83002		LIA	EIA
Follicle-Stimulating Hormone (FSH)	83001		LIA	
Vitamin D (25-OH D2/25-OH D3)	82306		LCMS	
Ferritin (FER)	82728			
Thyroid Testing				
Free Thyroxine (fT4)	84439		EIA	
Free Triiodothyronine (fT3)	84481		EIA	
Thyroglobulin (TG)	84432		LIA	
Thyroid-Stimulating Hormone (TSH)	84443		LIA	
Thyroid Peroxidase Antibodies (TPOab)	86376		EIA	
Thyroxine (T4), total	84436		TRFIA	
Cardiometabolic Testing				
Cholesterol (CH), total	82465		Enzymatic	
HDL Cholesterol (HDL)	83718		Enzymatic	
Hemoglobin A1c (HbA1c)	83036		ITA	
High-Sensitivity C-Reactive Protein (hsCRP)	86141		EIA	
Insulin (Ins), fasting	83525		EIA	
Triglycerides (TG)	84478		Enzymatic	
Lipids Panel (TG, HDL, & CH)	80061		Enzymatic	
Neurotransmitter Testing				
5-Hydroxyindoleacetic acid (5-HIAA)	83497			LCMS
Dopamine (DA), DOPAC	82384			LCMS
Norepinephrine (NE), Epinephrine (Epi)	82384			LCMS
GABA, Glutamate (Glu), Glycine (Gly)	82139			LCMS
Tryptophan, Kynurenine, 3-Hydroxykynurenine	82139			LCMS
Taurine (Tau), Glutamine (Gln), Histidine (His)	82139			LCMS
Phenethylamine (PEA), N-Methylhistamine, Tyramine	82542			LCMS
Histamine (Hist)	83088			LCMS
Kynurenic acid (KynAC), Xanthurenic acid (Xanth)	83921			LCMS
Homovanillic acid (HVA)	83150			LCMS
Normetanephrine (NMN)	83835			LCMS
Serotonin (5-HT)	84260			LCMS
Tyrosine (Tyr)	84510			LCMS
Vanillylmandelic acid (VMA)	84585			LCMS
Creatinine (Crtn)	82570			LCMS
Heavy Metals & Essential Elements Testing				
Arsenic (As)	82175			ICPMS
Bromine (Br)	84311			ICPMS
Cadmium (Cd)	82300		ICPMS	ICPMS
Copper (Cu)	82525		ICPMS	
Iodine (I)	84311			ICPMS
Lead (Pb)***	83655		ICPMS	
Lithium (Li)	80178			ICPMS
Magnesium (Mg)	83735		ICPMS	
Mercury (Hg)	83825		ICPMS	ICPMS
Selenium (Se)	84255		ICPMS	ICPMS
Zinc (Zn)	84630		ICPMS	
Adjunct to Urine Testing				
Creatinine (Crtn)	82570			Colorimetric

The American Medical Association's Current Procedural Terminology (CPT®) codes are provided for informational purposes only to assist with billing. ZRT assumes no responsibility for billing errors due to reliance on the published CPT codes.

****Tested in saliva and blood spot. Saliva measures free (bioavailable) levels**
***** Only Available to Research Accounts**

Payment Options & Billing Practices

Bill Provider (Domestic and Canada)

- Provider distributes kits to patients
- Provider is responsible for payment to ZRT and will be billed twice monthly for any completed report
- Automatic payment methods are available for provider convenience (required in Canada)
- Patient insurance billing is the responsibility of the provider (except Medicare, see below)
- Return shipping included

Patient Pay (Domestic Only)

- Provider distributes kits to patients
- Patient is responsible for payment to ZRT Laboratory
- We will courtesy bill a select group of insurances as a non-contracted provider at ZRT retail price
- Return shipping included

International

- Provider distributes kits to patients
- Provider is billed twice monthly for any report that has been completed (Patient Pay not available)
- Automatic payment required with this option
- International shipping charges apply for outbound orders
- Patient is responsible for return shipping costs

Insurance Billing

ZRT Laboratory will courtesy bill the following insurance companies: Original Medicare Part B, Medicare Advantage Plans, TRICARE, Humana and Regence Blue Cross Blue Shield as a non-contracted provider at the ZRT retail price. Please note we do not file secondary insurance. We recommend patients check with their insurance companies regarding coverage prior to testing.

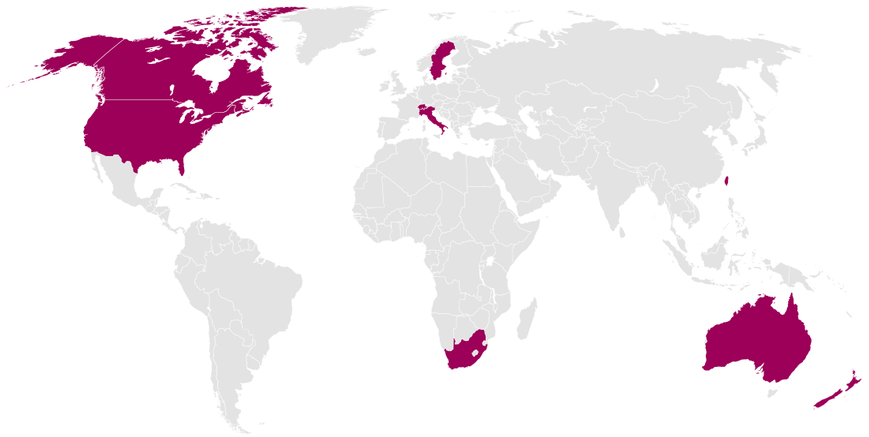
Medicare

Prepayment is required for saliva testing or for any test ordered by providers outside the scope of their practices (ND, DC, LAC, etc.) or who are not enrolled with Medicare, as it is not covered. All providers must order Medicare Kits separately from standard test kits to satisfy Medicare regulations. ZRT Laboratory will courtesy bill Medicare for all payment options.

Clinical Research & Study Testing

Research is at the heart of everything we do.

The range of testing options we have developed is suited to research applications because samples are easy to collect, store, and ship for testing, and our results are highly accurate. Because collected samples are stable for weeks (saliva) or months (DBS and dried urine) and do not need to be shipped frozen, research can be carried out even in remote areas and samples shipped via regular mail.



- United States
- Canada
- Australia
- Switzerland
- Italy
- Sweden
- New Zealand
- South Africa
- Taiwan

► **We are involved in research collaborations with academic institutions, research organizations and hospitals across the globe. The map above highlights countries where we currently have research involvement.**

Pioneer Alongside ZRT Laboratory

We invite collaborations with clinicians involved in research, including partnerships in clinical trials that require a CLIA-certified testing laboratory for analyses. We provide sample collection materials for serum, saliva, DBS, or dried urine samples. Research samples are tested at ZRT by state-of-the art methodology, including FDA-approved immunoassays, enzymatic assays, inductively-coupled plasma mass spectrometry (ICP-MS), gas chromatography tandem mass spectrometry (GC-MS/MS), and liquid chromatography tandem mass spectrometry (LC-MS/MS).

Visit our website to see a current list of published research papers and a list of abstracts and posters presented at scientific meetings.

LEARN MORE

If you are interested in a research collaboration with ZRT, or if you wish to partner with us for clinical trial testing, contact us for more information.

Call 1.866.600.1636 or visit **www.zrtlab.com/research/research-collaboration-inquiry/**

Abbreviation Key

2-Hydroxy Estradiol (2-OH E2)
2-Hydroxy Estrone (2-OH E1)
2-Methoxy Estradiol (2-MeO E2)
2-Methoxy Estrone (2-MeO E1)
3-Hydroxykynurenine (3-OHkyn)
3α-Dihydroprogesterone (3αHP)
3α-Hydroxysteroid Dehydrogenase (3α-HSD)
3β-Hydroxysteroid Dehydrogenase (3β-HSD)
4-Hydroxy Estradiol (4-OH E2)
4-Hydroxy Estrone (4-OH E1)
4-Methoxy Estradiol (4-MeO E2)
4-Methoxy Estrone (4-MeO E1)
5-Hydroxyindoleacetic Acid (5-HIAA)
5-Hydroxytryptamine (5-HT)
5α-Dihydrotestosterone (5α-DHT)
5α-Reductase (5α-R)
5β-Reductase (5β-R)
3,4-Dihydroxyphenylacetic Acid (DOPAC)
7-Keto Dehydroepiandrosterone (7keto)
5α,3α-Androstanediol (5α3α)
11-Deoxycortisol (11DC)
11β-Hydroxylase (11β-OH)
11β-Hydroxysteroid Dehydrogenase (11β-HSD)
16α-Hydroxy Estrone (16α-OH E1)
17-Hydroxyprogesterone (17-OHPg)
17-OH Progesterone (17OHPg)
17α-Hydroxylase (17α-OH)
17β-Hydroxysteroid Dehydrogenase (17β-HSD)
20α-Dihydroprogesterone (20αHP)
20α-Hydroxysteroid Dehydrogenase (20α-HSD)
21-Hydroxylase (21-OH)

A

Aldehyde Dehydrogenases (ALDH)
Aldehyde Reductase (AR)
Aldosterone (ALD)
Aldosterone Synthase (AS)
Allopregnanediol (AlloPd)
Allopregnanolone (AlloP)
Anastrozole (ANZ)
Androstenedione (Adione)
Androsterone (Andro)
Aromatic L-Amino Acid Decarboxylase (AADC)
Arsenic (As)
Arylalkylamine N-Methyltransferase (AANMT)
Attention Deficit Disorder (ADD)
Attention Deficit Hyperactivity Disorder (ADHD)

B

Benign Prostatic Hyperplasia (BPH)
Bisphenol A (BPA)
Bromine (Br)

C

Cadmium (Cd)
Cardiovascular Disease (CVD)
Catechol-O-Methyl-Transferase (COMT)
Cholesterol (CH)
Copper (Cu)
Corticosterone (Ccn)
Cortisol (C)
Cortisol Awakening Response (CAR)
Cortisone (Cn)
Creatinine (Crtn)
Cysteine Dioxygenase (CDO)
Cysteine Sulfinic Acid Decarboxylase (CSAD)
Cytochrome p450 (CYP)

D

Dehydroepiandrosterone (DHEA)
Dehydroepiandrosterone Sulfate (DHEA-S)
Deoxycorticosterone (DOC)
Dihydrotestosterone (DHT)
Diurnal 6-Sulfatoxymelatonin (MT6s)
Dopamine (DA)
Dopamine Beta-Hydroxylase (DBH)
Dried Blood Spot (DBS)
Dysfunctional Uterine Bleeding (DUB)

E

Epinephrine (Epi)
Epi-Testosterone (Epi-T)
Erectile Dysfunction (ED)
Estradiol (E2)
Estriol (E3)
Estrone (E1)
Estrone-3-Glucuronide (E1G)
Ethinyl Estradiol (EE)
Etiocholanolone (Etio)

F

Ferritin (FER)
Finasteride (FIN)
Follicle-Stimulating Hormone (FSH)
Free Cortisol (FC)
Free Cortisone (FCn)
Free Thyroxine (fT4)
Free Triiodothyronine (fT3)

G

Gamma-Aminobutyric Acid (GABA)
Glutamate (Glu)
Glutamate Decarboxylase (GAD)
Glutaminase (GLS)
Glutamine (Gln)
Glutamine Synthetase (GS)
Glycine (Gly)
Growth Hormone (GH)

H

Hemoglobin A1c (HbA1c)
High-Density Lipoprotein (HDL)
High-Sensitivity C-Reactive Protein (hsCRP)
Histamine (Hist)
Histamine N-Methyltransferase (HNMT)
Histidine Decarboxylase (HDC)
Homovanillic Acid (HVA)
Hormone Replacement Therapy (HRT)
Hydroxyindole-O-Methyltransferase (HIOMT)
Hypotaurine Dehydrogenase (HD)
Hypothalamic–Pituitary–Adrenal (HPA)

I

Indoleamine-Pyrrole 2,3-Dioxygenase (IDO)
Inductively-Coupled Plasma Mass Spectrometry-(ICP-MS)
Insulin (Ins)
Iodine (I)
Iron (Fe)

K

Kynurenic acid (KynAc)
Kynurenine (Kyn)
Kynurenine Aminotransferase (KAT)
Kynurenine Hydroxylase/Monooxygenase (KMO)

L

Lead (Pb)
Letrozole (LTZ)
Liquid Chromatography with Tandem Mass Spectrometry (LC-MS/MS)
Lithium (Li)
Low-Density Lipoprotein (LDL)
Luteinizing Hormone (LH)

M

Magnesium (Mg)
Manganese (Mn)
Melatonin (Mel)
Melatonin 6 Hydroxylase (M6H)
Melatonin 6 Sulfotransferase (M6ST)
Mercury (Hg)
Methyltetrahydrofolate (MTHF)
Molybdenum (Mo)
Monoamine Oxidase (MAO)

N

National Institutes of Health (NIH)
N-Formyl Kynurenine Formamidase (FKF)
N-Methylhistamine (N-MeHist)
Norepinephrine (NE)
Normetanephrine (NMN)

O

Obsessive Compulsive Disorder (OCD)

P

Phenethylamine (PEA)
Phenylalanine Hydroxylase (PAH)
Phenylethanolamine N-Methyltransferase (PNMT)
Polycystic Ovary Syndrome (PCOS)
Pregnanediol (Pgdiol)
Pregnanediol-3-Glucuronide (PDG)
Pregnenolone Sulfate (PregS)
Premenstrual Dysphoric Disorder (PMDD)
Premenstrual Syndrome (PMS)
Progesterone (Pg)
Prostate Specific Antigen (PSA)

S

S-adenosylmethionine (SAMe)
Selenium (Se)
Serine Hydroxymethyl Transferase (SHMT)
Serotonin 5-Hydroxytryptamine (5-HT)
Sex Hormone Binding Globulin (SHBG)
Sulfatase (SU)
Sulfotransferase (ST)

T

Tandem Mass Spectrometry (GC-MS/MS)
Taurine (Tau)
Testosterone (T)
Tetrahydrobiopterin (BH4)
Tetrahydrocortisol (ThC)
Tetrahydrocortisone (ThCn)
Threonine Aldolase (ThrA)
Thyroglobulin (Tgbn)
Thyroid Peroxidase Antibodies (TPOab)
Thyroid Peroxidase (TPO)
Thyroid-Stimulating Hormone (TSH)
Thyroxine (T4)
Total Cortisol (TC)
Total Cortisone (TCn)
Triglycerides (TG)
Tryptophan (Trp)
Tryptophan Hydroxylase (TPH)
Tryptophan 2,3-Dioxygenase (TDO)
Tyramine (Tyra)
Tyrosine (Tyr)
Tyrosine Decarboxylate (TD)
Tyrosine Hydroxylase (TH)

V

Vanillylmandelic Acid (VMA)
Very-Low-Density Lipoprotein (VLDL)

X

Xanthurenic Acid (Xanth)

Z

Zinc (Zn)

General Information

Contact Info

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Fax: 503.466.1636
Email: info@zrtlab.com
Website: www.zrtlab.com

Mailing Address

ZRT Laboratory
8605 SW Creekside Place
Beaverton, OR 97008

CPT Codes

The American Medical Association's Current Procedural Terminology (CPT®) codes in ZRT Laboratory's Test Directory are provided for informational purposes only. CPT codes are provided only as a guide to assist providers with billing. ZRT recommends that clients confirm CPT codes with their Medicare administrative contractor, as requirements may differ. CPT coding is the sole responsibility of the billing party. ZRT assumes no responsibility for billing errors due to reliance on the published CPT codes.

Health Insurance Portability & Accountability Act (HIPAA)

ZRT Laboratory is committed to complying with privacy and security standards outlined in the HIPPA and the Health Information Technology for Economic and Clinical Health Act. Notice of Privacy Practices may be found at www.zrtlab.com.