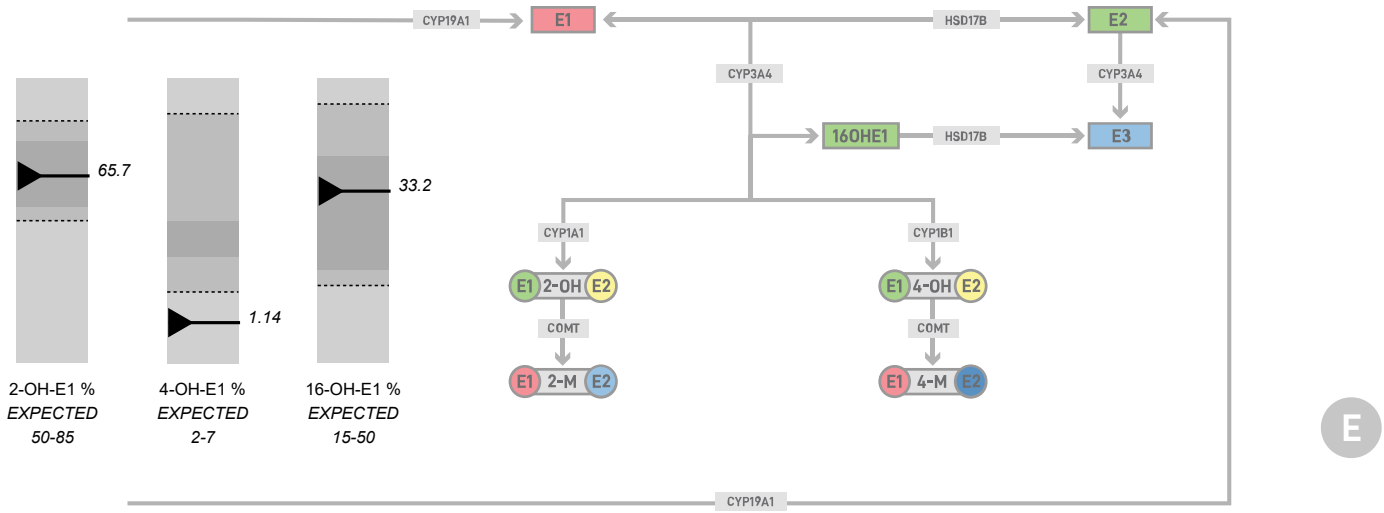
Estrogen Metabolites profile; urine

Order: 999999-9999
Test: X999999-9999-1
Client #: 999999
Doctors Data Inc
123 Main St.
St. Charles, IL 60174 USA

Patient: Sample Patient
Id: 999999
Age: 61 **DOB:** 01/01/1960
Sex: Female
Body Mass Index (BMI): 25

Menopausal Status: Post-menopausal

Sample Collection	Date/Time
Dinnertime	12/30/2022 19:20
Bedtime	12/30/2022 22:30
Waking	12/31/2022 07:00
2 Hr. Post Waking	12/31/2022 09:30
Collection Period	Multipoint daily
Date Received	01/01/2023
Date Reported	01/02/2023



Estrogens		Result	Unit	L WRI H	Reference Interval
Estrone	(E1)	5.62	ng/mg Creat/Day		1.75 – 5.12
2-Hydroxyestrone	(2-OH-E1)	3.97	ng/mg Creat/Day		1.62 – 6.5
4-Hydroxyestrone	(4-OH-E1)	0.069	ng/mg Creat/Day		0 – 0.3
16α-Hydroxyestrone	(16-OH-E1)	2.00	ng/mg Creat/Day		1.05 – 5.3
2-Methoxyestrone	(2-M-E1)	2.36	ng/mg Creat/Day		0.41 – 1.34
4-Methoxyestrone	(4-M-E1)	0.099	ng/mg Creat/Day		0.007 – 0.05
Estradiol	(E2)	1.02	ng/mg Creat/Day		0.2 – 1.6
2-Hydroxyestradiol	(2-OH-E2)	0.288	ng/mg Creat/Day		0.033 – 0.29
4-Hydroxyestradiol	(4-OH-E2)	0.231	ng/mg Creat/Day		0.052 – 0.26
2-Methoxyestradiol	(2-M-E2)	0.018	ng/mg Creat/Day		0.012 – 0.039
4-Methoxyestradiol	(4-M-E2)	0.004	ng/mg Creat/Day		0.009 – 0.024
Estriol	(E3)	3.27	ng/mg Creat/Day		1.61 – 5.6

Ratios and Calculations		Result	Unit	L WRI H	Reference Interval
2-OH-E1 %	(2-OH-E1 %)	65.7	%		50 – 85
4-OH-E1 %	(4-OH-E1 %)	1.14	%		2 – 7

Estrogen Metabolites profile; urine

Order: 999999-9999
Test: X999999-9999-1
Client #: 999999
Doctors Data Inc
123 Main St.
St. Charles, IL 60174 USA

Patient: Sample Patient
Id: 999999
Age: 61 **DOB:** 01/01/1960
Sex: Female
Body Mass Index (BMI): 25

Menopausal Status: Post-menopausal

Sample Collection	Date/Time
Dinnertime	12/30/2022 19:20
Bedtime	12/30/2022 22:30
Waking	12/31/2022 07:00
2 Hr. Post Waking	12/31/2022 09:30
Collection Period	Multipoint daily
Date Received	01/01/2023
Date Reported	01/02/2023

Ratios and Calculations		Result	Unit	L WRI H	Reference Interval
16-OH-E1 %	(16-OH-E1 %)	33.2	%		15 – 50
2-M-E1:2-OH-E1	(COMT/Methylation activity)	0.568			0.1 – 0.36
2-M-E2:2-OH-E2	(COMT/Methylation activity)	0.061			0.07 – 0.37
4-M-E1:4-OH-E1	(COMT/Methylation activity)	1.37			0.09 – 0.54
4-M-E2:4-OH-E2	(COMT/Methylation activity)	0.015			0.04 – 0.54
2-OH-E1:16-OH-E1		1.98			1.6 – 5.1
4-OH-E1:2-OH-E1		0.017			0.02 – 0.07

Creatinine	Result	Unit	L WRI H	Reference Interval
Creatinine/day	104	mg/dL/Day		30 – 225

Commentary

Order: 999999-9999
Test: X999999-9999-1
Client #: 999999
Doctors Data Inc
123 Main St.
St. Charles, IL 60174 USA

Patient: Sample Patient
Id: 999999
Age: 61 **DOB:** 01/01/1960
Sex: Female
Body Mass Index (BMI): 25

Menopausal Status: Post-menopausal

Sample Collection	Date/Time
Dinnertime	12/30/2022 19:20
Bedtime	12/30/2022 22:30
Waking	12/31/2022 07:00
2 Hr. Post Waking	12/31/2022 09:30
Collection Period	Multipoint daily
Date Received	01/01/2023
Date Reported	01/02/2023

Estrogens

Estrone (E1)
A component of the estrone level may be due to aromatization of androstenedione and testosterone by CYP19 (aromatase) enzyme in adipose tissue and/or conversion from estradiol due to HSD17β activity. Elevated estrone has been associated with increased risk of breast cancer in postmenopausal women, particularly when accompanied by elevated testosterone. CYP19 enzyme is induced during times of stress, exposure to xeno-estrogens, high glycemic diet, excessive adipose tissue, and alcohol consumption.

2-Methoxyestrone (2-M-E1)
2-M-E1 is considered a non-reactive metabolite. Higher levels correlated with antiproliferative and antiangiogenic effects as well as cardioprotective properties. Depending on other metabolite values, and if excretion from the GI tract is functioning properly, elevations in 2-M-E1 may be considered healthy.

4-Methoxyestrone (4-M-E1)
Methyl metabolites are considered inactive and are correlated with protective and antiproliferative effects. Proper elimination of 4-M-E1 requires optimal excretion via the GI tract; optimizing GI health is an option. To fully understand this value, it may be beneficial to examine the 4-M-E1 / 4-OH-E1 ratio.

4-Methoxyestradiol (4-M-E2)
Lower levels of 4-M-E2 is associated with a higher risk of certain cancers and other negative markers for breast health. Low levels of 4-M-E2 may indicate that 4-OH metabolites are favoring the quinone/semi quinone pathway which can lead to DNA damage. Supporting the COMT enzyme (methylation) is a consideration.

2-M-E1:2-OH-E1 (COMT/Methylation activity)
The relationship of 2-M-E1 / 2-OH-E1 represents the activity of COMT (methylation). While 2-OH-E1 is considered a safe metabolite, it is still considered a reactive metabolite until methylated and inactivated. Elevated COMT activity shows more of 2-OH-E1 is being methylated, which is considered favorable. Over time, COMT enzyme may need additional support to keep up with demand. Comparing additional areas of COMT activity (i.e., 4-M-E1/ 4-OH-E1) may give more insight into the function of this enzyme.

2-M-E2:2-OH-E2 (COMT/Methylation activity)
The relationship of 2-M-E2 / 2-OH-E2 represents the activity of COMT (methylation) enzyme. A low ratio indicates slower COMT activity. While 2-OH-E2 is considered a safe metabolite, it is still considered a reactive metabolite until methylated and inactivated. Comparing additional areas of COMT activity (i.e., 4-M-E1/ 4-OH-E1) may give more insight into the function of this enzyme.

4-M-E1:4-OH-E1 (COMT/Methylation activity)
The relationship of 4-M-E1 / 4-OH-E1 represents the activity of COMT (methylation). 4-OH-E1 is considered unfavorable due to its carcinogenic potential within breast and prostatic tissue. Elevated COMT activity shows more of 4-OH-E1 is being methylated, which is considered favorable. Over time, COMT enzyme may need additional support to keep up with demand. Comparing additional areas of COMT activity (i.e., 2-M-E1/ 2-OH-E1) may give more insight into the function of this enzyme.

4-M-E2:4-OH-E2 (COMT/Methylation activity)
The relationship of 4-M-E2 / 4-OH-E2 represents the activity of COMT (methylation) enzyme. A low ratio indicates slower COMT activity, which may mean a higher potential for the creation of quinones, semi-quinones, and depurinating adducts. Increasing COMT enzyme activity is a consideration.

4-OH-E1:2-OH-E1
A low ratio can indicate a metabolic preference for the less favorable 4-OH-E1 pathway. Optimizing methylation to support the COMT enzyme can potentiate the more protective 2-OH-E1 pathway. Increasing the activity of CYP1A1 to increase 2-OH-E1 is a consideration.