

PROCESSING INSTRUCTIONS FOR BRAC TESTS

PROCESSING SPECIFICATIONS													
ANALYTE	Preferred Draw Tube	Alternate Draw Tube	Centrifuge Temp (°C) 10 mins	Preferred Aliquot (mL)	Pediatric Aliquot (mL) <sup>4</sup>	Storage Tubes	Storage Temp (°C)	Reportable Units	Manufacturer	Method	Lowest Reportable Value	REFERENCE RANGE <sup>6</sup>	Stability
Anti-Mullerin Hormone (AMH)	SST	Lithium heparin plasma	R.T. @ 1500 x g <sup>1</sup>	1 x 0.2	1 x 0.1	2 ml 'o' ring	-80	pg/mL	Ansh Labs Webster, TX	ELISA	5.2 pg/mL	Females Age 40 or less:1000-6000 pg/mL Females age 40+: <1000 pg/mL	Thaw samples no more than 3 times. Avoid assaying lipemic, hemolyzed or icteric samples.
ACTH	EDTA tube on ice	none	4°C @ 1500 x g <sup>1</sup>	2 x 0.5	1 x 0.5	2 ml 'o' ring	-80	pg/mL	Diasorin, Inc Stillwater, MN	IRMA	1.5 pg/mL	6.0-56.7 pg/ml	
ADIPONECTIN	SST	EDTA or Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.2	1 X 0.1	2 ml 'o' ring	-80	ug/mL	ALPCO Diagnostics Salem, NH	EIA	0.10 ug/mL	Unknown	
ADIPONECTIN HMW	SST	EDTA or Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.2	1 X 0.1	2 ml 'o' ring	-80	ug/mL	ALPCO Diagnostics Salem, NH	EIA	0.10 ug/mL	Unknown	
ALDOSTERONE	SST	EDTA or Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.3	1 x 0.2	2 ml 'o' ring	-80	ng/dL	IBL	EIA	2.0 ng/dL	Supine Low Na: 15-40 ng/dL Supine High Na: 1-10 ng/dL Upright Low Na: 25-80 ng/dL Upright High Na: 6-20ng/dL	
ANGIOTENSIN II	EDTA (Preservative Req'd)	none	4°C @ 1500 x g <sup>1</sup>	2 x 1.2	1 x 1.2	Special 2 ml 'o' ring <sup>2,3</sup>	-80	pg/mL		LCMS			
Bone Specific Alk Phas (BSAP)	SST	Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.5	1 x 0.3	2 ml 'o' ring	-80	ug/L	Bechman Coulter Fullerton, CA	Access Chemiluminescent Immunoassay	0.1 ug/L	Female Age 25-35: 2.9-14.5 ug/L Female Age 56+: 3.8 - 22.6 ug/L Male: 3.7 - 20.9 ug/L	
C-PEPTIDE	SST (Preservative Req'd)	EDTA (Preservative Req'd)	R.T. @ 1500 x g <sup>1</sup>	1 x 0.6	1 x 0.3	Special 2 ml 'o' ring <sup>3</sup>	-80	ng/mL	Millipore, St. Charles, MS	RIA	0.2 ng/mL	Normal fasting range: 0.5-1.5 ng/mL	Avoid multiple (>5) freeze/thaw cycles.
Cortisol (Chemiluminescent)	SST	EDTA or Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.5	1 x 0.3	2 ml 'o' ring	-80	ug/dL	Bechman Coulter Fullerton, CA	Access Chemiluminescent Immunoassay	0.4 ug/dL	AM: 6.7-22.6 ug/dL PM.: <10 ug/dL	
C-Terminal telopeptide (CTX)	SST	EDTA or Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.4	1 x 0.2	2 ml 'o' ring	-80	ng/mL	Immunodiagnostic Systems (IDS) Fountain Hills, AZ	ELISA	0.02 ng/mL	Post-menopausal Women 0.142 - 1.351 ng/mL Pre-menopausal Woman 0.112 - 0.738 ng/mL Men 0.115 - 0.748 ng/mL	

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DHEAs	SST	EDTA or Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.5	1 x 0.3	2 ml 'o' ring	-80	ug/dL	Bechman Coulter Fullerton, CA	Access Chemiluminescent Immunoassay	2 ug/dL	Normal range is gender and age dependant. If you need the normal range please contact the lab.
DNA-extraction (blood)	EDTA	ACD (acid citrate dextrose), Paxgene™ or Heparin	To collect buffy coat spin down at R.T. @ 1500 x g <sup>1</sup> 10 mins and remove plasma	1 x 10 mL of blood	1 x 5 mL of blood or 1mL buffy coat	Blood must be transferred in sterile 50 mL Falcon tube	50 mL falcon tube must be frozen immediately for both whole blood and buffy coat and store at -80 C	ug/mL	GENTRA Minneapolis, MN	PureGene DNA Isolation	2 ug/mL	150-500 ug/5-10mL for blood samples that have been stored under optimal conditions. For example, no more than 1 day at room temperature (15–25°C) or 5 days at 4°C or frozen at –80°C for less than 2 years.
DBP (Vitamin D Binding Protien or GC Globulin)	SST	EDTA, Heparin or Citrate	R.T. @ 3000 x g <sup>1</sup>	1 x 0.2	1 X 0.1	2 ml 'o' ring	-80	ug/mL	AssayPro, St. Charles, MO	ELISA	0.09 ug/mL	Normal human Gc-globulin plasma levels range from 200 to 600 µg/ml.
E-Selectin	SST	Heparin or Citrate	R.T. @ 1500 x g <sup>1</sup>	1 x 0.2	1 X 0.1	2 ml 'o' ring	-80	ng/mL	R&D systems Minneapolis, MN	ELISA	0.10 ng/mL	17.9 - 79.2 ng/mL
Estradiol (Chemiluminescent)	SST	EDTA or Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.5	1 x 0.4	2 ml 'o' ring	-80	pg/mL	Beckman Coulter Fullerton, CA	Access Chemiluminescent Immunoassay	20 pg/mL	Females: mid-follicular Phase 27-122 pg/mL mid-luteal Phase:49-291 pg/mL peri-ovulatory phase 95-433 pg/mL Post-menopausal <20-40 pg/mL Males: <20-47 pg/mL
FSH	SST	Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.5	1 x 0.3	2 ml 'o' ring	-80	mIU/mL	Bechman Coulter Fullerton, CA	Access Chemiluminescent Immunoassay	0.2 mIU/mL	Females: Follicular Phase 3.85 - 8.78 mIU/mL Mid Cycle Peak 4.54 - 22.51 mIU/mL Mid Luteal Phase 1.79 - 5.12 mIU/mL Post-Menopausal 16.74 - 113.59 mIU/mL Males 1.27–19.26 mIU/mL
Ghrelin (active), RIA	EDTA (Preservative Req'd)	SST (Preservative Req'd)	R.T. @ 1500 x g <sup>1</sup>	1 x 0.6	1 x 0.3	Special 2 ml 'o' ring <sup>3</sup>	-80	pg/mL	Millipore, St. Charles, MS	RIA	3.2 pg/mL	Not Available
Ghrelin (active), ELISA	SST (Preservative Req'd)	EDTA (Preservative Req'd)	4°C @ 3000 x g <sup>1</sup>	1 x 0.5	1 x 0.1	Special 2 ml 'o' ring <sup>3</sup>	-80	pg/mL	Millipore, St. Charles, MS	ELISA	31 pg/mL	Not Available
Growth Hormone	SST	Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.5	1 x 0.3	2 ml 'o' ring	-80	ng/mL	Beckman Coulter Fullerton, CA	Access Chemiluminescent Immunoassay	0.01 ng/mL	Males 0.003–0.971 ng/mL Females 0.010–3.607 ng/mL
ICAM	SST	EDTA or Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.2	1 X 0.1	2 ml 'o' ring	-80	ng/mL	R&D systems Minneapolis, MN	ELISA	2.00 ng/mL	98.8 - 320 ng/mL
IL-6	SST	Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.6	1 x 0.4	2 ml 'o' ring	-80	pg/mL	Beckman Coulter Fullerton, CA	Access Chemiluminescent Immunoassay	0.5 pg/mL	<50 years old: 1.9-4.0 pg/mL >50 years old: 4.1-6.5 pg/mL
Insulin	SST	EDTA	R.T. @ 1500 x g <sup>1</sup>	1 x 0.5	1 x 0.3	2 ml 'o' ring	-80	uIU/mL	Beckman Coulter Fullerton, CA	Access Chemiluminescent Immunoassay	0.03 uIU/mL	Fasting: 1.9-23 uIU/mL
Leptin	SST	EDTA	R.T. @ 1500 x g <sup>1</sup>	1 x 0.6	1 x 0.3	2 ml 'o' ring	-80	ng/mL	LINCO Research St. Charles, MS	RIA	0.1 ng/mL	Males 2.3-5.3 ng/mL Females 3.7-11.1 ng/mL

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LH	SST	Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.6	1 x 0.4	2 ml 'o' ring	-80	mIU/mL	Bechman Coulter Fullerton, CA	Access Chemiluminescent Immunoassay	0.2 mIU/mL	Females: Follicular Phase 2.12 - 10.89 mIU/mL Mid Cycle Peak 19.18 - 103.03 mIU/mL Mid Luteal Phase 1.20 - 12.86 mIU/mL Post-Menopausal 10.87 - 58.64 mIU/mL Males: 1.24-8.62 mIU/mL	
LL37	EDTA	none	4°C @ 1500 x g <sup>1</sup>	1 x 0.2	1 X 0.1	Special 2 ml 'o' ring <sup>3</sup>	-80	ng/mL	Hycult Biotech, Plymouth Meeting, PA	ELISA	0.1 ng/mL	Not Available	
Osteocalcin	SST	EDTA or Heparin	R.T. @ 1500 x g <sup>1</sup>	2 x 0.1	1 x 0.1	Special 2 ml 'o' ring <sup>3</sup>	-80	ng/mL	ALPCO Diagnostics Salem, NH	ELISA	0.4 ng/mL	5-25 ng/mL	
PAI-1	EDTA	Heparin or Citrate	R.T. @ 1500 x g <sup>1</sup>	1 x 1	1 x 0.5	2 ml 'o' ring	-80	ng/mL	R&D systems Minneapolis, MN	ELISA	0.312	0.99 - 16.9 ng/mL	
Progesterone (Chemiluminescent)	SST	none	R.T. @ 1500 x g <sup>1</sup>	1 x 0.5	1 x 0.3	2 ml 'o' ring	-80	ng/mL	Beckman Coulter Fullerton, CA	Access Chemiluminescent Immunoassay	0.08 ng/mL	Females: Follicular 0.31-1.52 ng/mL Luteal: 5.16-18.56 ng/mL Post menopausal <0.08-0.78 ng/mL Males 0.10-0.84 ng/mL	
Prolactin	SST	Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.5	1 x 0.3	2 ml 'o' ring	-80	ng/mL	Bechman Coulter Fullerton, CA	Access Chemiluminescent Immunoassay	0.25 ng/mL	Post-menopausal Women 2.74 - 19.64 ng/mL Pre-menopausal Woman 3.34 - 26.72 ng/mL Men 2.64 - 13.13 ng/mL	
PINP	SST	none	R.T. @ 1500 x g <sup>1</sup>	1 x 0.4	1 x 0.2	2 ml 'o' ring	-80	ug/L	Immunodiagnostic Systems (IDS) Fountain Hills, AZ	RIA	0.7 ug/L	Post-menopausal Women 16 - 96 ug/L Pre-menopausal Woman 19 - 83 ug/L Men 22 - 87 ug/L	
PTH-Intact	SST	EDTA or Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.6	1 x 0.4	2 ml 'o' ring	-80	pg/mL	Beckman Coulter Fullerton, CA	Access Chemiluminescent Immunoassay	1 pg/mL	12-88 pg/mL	
PYY (Total)	SST	EDTA	R.T. @ 1500 x g <sup>1</sup>	1 x 0.2	1 X 0.1	2 ml 'o' ring <sup>3</sup>	-80	pg/mL	Millipore St. Charles, MS	ELISA	10 pg/mL	Not Available	
Plasma Renin Activity (PRA)	EDTA	none	R.T. @ 1500 x g <sup>1</sup>	2 x 1.0 mL (Quick Frozen)	1 x 1.0 mL (Quick Frozen)	2 ml 'o' ring	-80	ng/mL/hr	IBL America Minneapolis, MN	ELISA	0.1 ng/mL/hr	Supine Low Na: 2.5 - 8.0 ng/dL/hr Supine High Na: 0.5-3.0 ng/dL/hr Upright Low Na: 2.5-14 ng/dL/hr Upright High Na: 0.2-6.0 ng/dL/hr	Avoid Freezing and thawing more than once
Resistin	SST	EDTA or Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.2	1 x 0.1	2 ml 'o' ring	-80	ng/mL	R&D systems Minneapolis, MN	ELISA	0.21 ng/mL	Serum 6.39 - 26.4 ng/mL	
Retinol Binding Protein -4 (RBP4)	SST	EDTA or Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.2	1 x 0.1	2 ml 'o' ring	-80	mg/L	ALPCO Diagnostics Salem, NH	ELISA	1 mg/L	Adults 30 - 75 mg/L Newborns 11 - 34 mg/L 6 months old 18 - 50 mg/L	
Sex Hormone Binding Globulin (SHBG)	SST	Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.5	1 x 0.3	2 ml 'o' ring	-80	nmol/L	Beckman Coulter Fullerton, CA	Access Chemiluminescent Immunoassay	0.33 nmol/L	Males 13.3-89.5 nmol/L Females 18.2-135.5 nmol/L Post-menopausal females 16.8-125.2 nmol/L	Thaw samples no more than two times.
sVCAM	SST	EDTA or Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.2	1 x 0.1	2 ml 'o' ring	-80	ng/mL	R&D systems Minneapolis, MN	ELISA	12.00 ng/mL	349 - 991 ng/mL	

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Testosterone (Chemiluminescent)	SST	Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.5	1 x 0.3	2 ml 'o' ring	-80	ng/dL	Beckman Coulter Fullerton, CA	Access Chemiluminescent Immunoassay	10 ng/dL	Males: 175-781 ng/dL Females: <10-75 pg/mL	
TNF-α	SST	EDTA or Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 1	1 x 0.5	2 ml 'o' ring	-80	pg/mL	R&D systems Minneapolis, MN	ELISA	0.5 pg/mL	0.550 - 2.816 pg/mL	
TSH	SST	Heparin	R.T. @ 1500 x g <sup>1</sup>	1 x 0.5	1 x 0.4	2 ml 'o' ring	-80	uIU/mL	Beckman Coulter Fullerton, CA	Access Chemiluminescent Immunoassay	0.01 uIU/mL	0.5-5.0 uIU/mL	
N-Telopeptides (NTX)	SST	EDTA	R.T. @ 1500 x g <sup>1</sup>	1 x 0.6	1x 0.3	2 ml 'o' ring	-80	nM BCE	Alere Osteomark, Scarborough, ME	ELISA	5 nM BCE	Not Available Avoid Freeze-thaw	
Total Testosterone (LCMS)	SST	Any	R.T. @ 1500 x g <sup>1</sup>	1 x 0.5mL	1 x 0.3mL	2 ml 'o' ring	-80	ng/dL		LC-MS	1 ng/dL	Males: 270 – 1070ng/dL; Females: 15 –70 ng/dL; Children : 2-20ng/mL	
Dihydrotestosterone (DHT), Serum	SST	None		1 x 1.0mL	1 x 0.5mL		-80	ng/dL		LC-MS	2ng/dL	Males Cord blood: ≤ 100 pg/mL ≤ 6 months: ≤ 1,200 pg/mL >19 years: 112-955 Females Cord blood: ≤ 50 pg/mL ≤ 6 months: ≤ 1,200 pg/mL 20-55 years: ≤ 300	
Total 25-hydroxyvitamin D (D2 and D3)	SST	None	R.T. @ 1500 x g <sup>1</sup>	1 x 0.5mL	1 x 0.3mL		-80	pg/mL		LC-MS	1 pg/mL	30-74 ng/mL	
Estrone (LCMS)	SST	None	R.T. @ 1500 x g <sup>1</sup>	1 x 1.0mL	1 x 0.5mL		-80	ng/mL		LC-MS	1 ng/mL	Estrone Male: 10 – 60pg/mL Female (premenopausal): 17-200 pg/mL Female (postmenopausal): 7-40 pg/mL	
Estradiol (LCMS)	SST	None	R.T. @ 1500 x g <sup>1</sup>	0.5 mL	0.3 mL		-80	ng/mL		LC-MS	1 ng/mL	Estradiol Male: 10 - 50 pg/mL Female (premenopausal): 30 - 400 pg/mL Female (postmenopausal): 0 - 30 pg/mL	
Progesterone (LCMS)	SST	none	R.T. @ 1500 x g <sup>1</sup>	0.1 mL	0.1 mL		-20	ng/mL		LC-MS		Not Available	
Melatonin, Plasma	EDTA		4°C @ 1800 x g <sup>1</sup>	1 x 0.5mL	1 x 0.4mL		-80	pg/mL		LC-MS	5 pg/mL	Not Available	
Plasma Catecholamines (Epi/Norepi)	EDTA (Preservative Req'd)	EDTA	4°C @ 1500 x g <sup>1</sup>	0.5mL	0.5 mL		-80	pg/mL		LC-MS		Not Available	
PAH	Plasma	None	4°C @ 1800 x g <sup>1</sup>	1.0 mL	0.5 mL	2 ml 'o' ring*	-20			LC-MS		Not Available	
Cortisol (LCMS)	SST	none	R.T. @ 1500 x g <sup>1</sup>	0.5 mL	0.3 mL	2 ml 'o' ring*	-20	ng/mL		LC-MS		Not Available	

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Oxytocin	SST (Preservative Req'd)	EDTA (Preservative Req'd)		0.5 mL	0.3 mL	2 ml 'o' ring*	-80	pg/mL	Enzo Life Sciences	ELISA	16 pg/mL	Not Available	
17-Hydroxyprogesterone	SST	none								LC-MS		Not Available	
Free Testosterone	SST	None		0.5 mL	0.5 mL	2 ml 'o' ring	-80	%Free Testosterone		Equilibrium Dialysis/LCMS		Not Available	
Active GLP-1	Plasma collected in a BD Vacutainer® P700 or P800 draw tube.	None		0.5 mL	0.3 mL		-80					Not Available	
Myostatin (GDF-8)	SST			0.25	0.1		-80					Not Available	
GDF-11	SST			0.25	0.1		-80					Not Available	
Oxytocin (LCMS)	SST			0.5 mL	0.5 mL	2 ml 'o' ring*	-80	pg/mL		LCMS	5 pg/mL	Not Available	
<sup>1</sup> g = (1118 x 10 <sup>-8</sup> ) (radius in cm) (rpm) <sup>2</sup> ♦ <sup>2</sup> Quick freeze in dry ice/alcohol ♦ <sup>3</sup> Special Inhibitor added refer to specific SOP #225 ♦ <sup>4</sup> Minimum volumes, no repeat, tube will be discarded after analysis is completed ♦ <sup>5</sup> Store at -80°C until analysis is performed(samples will be returned to investigator after analysis is completed no later than 4 weeks or discarded) ♦ <sup>7</sup> 10 mL is minimum volume recommended per study								<sup>6</sup> For reference only not to be used for diagnostic					