SUPPLIES:

	U.S. Mail	UPS
Multiple Tube Mailer (Includes prepaid U.S. Mail Postage OR prepaid UPS)	☐ 6 (99120) ☐ 12 (99121) ☐ 24 (99122)	☐ 6 (99020) ☐ 12 (99021) ☐ 24 (99022)

Insulated UPS Mailers ☐ 1 (99220) ☐ 3 (99221) ☐ 6 (99222)
(Accommodates ice + multiple samples + includes prepaid return)

Preprinted Endo Submittal Forms ☐ (99030 - No Charge)

Listing of Endo Normals ☐ (99028 - No Charge)

MICHIGAN STATE UNIVERSITY
VETERINARY DIAGNOSTIC LABORATORY

Contact Lab: 517.353.1683 M-F: 7:30am-5:30pm EST

F.ADM.7.18 Issued: 07/13/2022

Other FORMS available – see animalhealth.msu.edu

MSU VDL Use Only:

Initials _____ Received _____

Check No. _____ Amount _____

Condition _____ Temp _____

MSU VDL Use Only: ___USS ___SST ___S ___L ___P ___U Other: _____ ☐ Ice ☐ No Ice

MSU VDL Account #_____ Submitting Veterinarian_____

Clinic Name_____

Address_____

City_____ State_____ Zip_____

Telephone_____ Fax_____

Email_____

Owner Name _____
Last First

Animal Name/ID _____ MRN _____

☐ Canine ☐ Feline ☐ Equine ☐ Other _____

Breed _____

Age ___ ☐ Day ☐ Wk ☐ Mo ☐ Yr; Weight___ ☐ kg ☐ lb

Sex: ☐ M ☐ F ☐ MC ☐ FS ☐ Unknown

Date Samples Taken _____

Date Samples Sent _____

Samples Sent: ☐ serum ☐ plasma ☐ urine

Separate serum & plasma into plain, labeled tubes. DO NOT send whole blood

Draw Time: __☐ am ☐ pm; __☐ am ☐ pm; __☐ am ☐pm

Identify Major Lesions/Signs (please ✓) ☐ **None**

- ☐ Abrasions
- ☐ Acanthosis
- ☐ Alopecia
- ☐ Anorexia
- ☐ Calcinosis cutis
- ☐ Cool Skin
- ☐ Crusts
- ☐ Dermatitis moist
- ☐ Dermatitis erythema
- ☐ Diarrhea
- ☐ Hyperkeratosis
- ☐ Hyperpigmentation
- ☐ Hypopigmentation
- ☐ Infertility
- ☐ Lethargy
- ☐ Lichenification
- ☐ Obesity
- ☐ Otitis
- ☐ Papule/plaque
- ☐ Polydipsia
- ☐ Polyuria
- ☐ Polyphagia
- ☐ Pruritus
- ☐ Pyoderma
- ☐ Scales
- ☐ Seborrhea
- ☐ Seizures
- ☐ Tachycardia
- ☐ Ulceration
- ☐ Vesicles
- ☐ Vomiting
- ☐ Weight loss
- ☐ Wheals

Location of Lesions/Signs (please ✓)

- ☐ Eyes
- ☐ Muzzle
- ☐ Head
- ☐ Neck
- ☐ Ears
- ☐ Chest
- ☐ Axilla
- ☐ Abdomen
- ☐ Back
- ☐ Sides
- ☐ Groin
- ☐ Rump
- ☐ Shoulders
- ☐ Genitals
- ☐ Tail
- ☐ Forefeet
- ☐ Hindfeet
- ☐ Forelimbs
- ☐ Hindlimbs
- ☐ Generalized lesions
- ☐ Bilateral symmetry

History, Other Clinical Signs, Tentative Diagnosis:

THERAPIES (List all current and recent)

☐ **NONE**

☐ **Thyroid** _____
_____ mg; frequency _____; _____ hrs post pill

☐ **Glucocorticoids** _____
☐ Oral _____ mg; frequency _____
☐ Eye ☐ Ear ☐ Topical; frequency _____
Last Administered: _____

☐ **Pituitary/Adrenal** _____
_____ mg; frequency _____
Last Administered _____

☐ **Anticonvulsant** _____
_____ ☐mg ☐gr; frequency _____; _____ hrs post pill

☐ **Other** _____

SPECIMEN REQUIREMENT KEY **P** EDTA PLASMA **S** SERUM **U** URINE

☐ **Interpretation of Results by a Veterinary Endocrinologist** (add'l charge applies) 20020
NOTE: Tests marked with asterisk (*) include interpretation.

THYROID FUNCTION (S)

Standard | Premium (FT4 by dialysis)

Canine

Thyroid Diagnostic Profile ☐ 20010 ☐ 20011
(TT4, TT3, FT4, T4AA, T3AA, TSH, TgAA)

Therapeutic Monitoring Profile ☐ 20012 ☐ 20013
(TT4, TT3, FT4, TSH)

OFA Thyroid Registry ☐ 20014
(Contact laboratory for required application or visit website)

Feline

Thyroid Profile ☐ 20015 ☐ 20016
(TT4, TT3, FT4)

Thyroid Profile + TSH ☐ 20012 ☐ 20013

T3 Suppression Test

Feline Thyroid Profile, pre ☐ 20015 ☐ 20016

Post T3, Specify hrs post-pill ___ ☐ 200xx ☐ 200xx

Other Species

Thyroid Profile ☐ 20015 ☐ 20016
(TT4, TT3, FT4)

Stand-Alone Tests

Thyroglobulin Autoantibody (TgAA) (canine) ☐ 20022

T4/T3 Autoantibody Index (canine) ☐ 20024

Free T4 by Dialysis (all species) ☐ 20021

Thyroid Stimulating Hormone (TSH) ☐ 20023

REPRODUCTIVE FUNCTION (S)

☐ **Progesterone, baseline** 20037

☐ **Testosterone, baseline** 20038

☐ **Testosterone, HCG Response Test**

- ☐ **Testosterone, baseline, pre** 20038
- ☐ **Testosterone, post HCG**
  ☐30, ☐60, ☐120 min, ____ hrs post HCG 200xx

ADRENAL FUNCTION (S)

Screening Tests

☐ **Urinary Cortisol:Creatinine Ratio (U)** 20019

☐ **Low-dose Dexamethasone Supp. Test (S)**
(canine: 0.01 mg/kg; feline: 0.1 mg/kg)
- ☐ **Cortisol, baseline, pre** 20017
- ☐ **Cortisol, post Dex** 200xx
  Specify _____ hr and _____ hr post Dex

☐ **ACTH Response Test (S)**
- ☐ **Cortisol, baseline, pre** 20017
- ☐ **Cortisol, post ACTH** 200xx
  Specify _____ hr and _____ hr post ACTH

Differentiation Tests

☐ **High-dose Dexamethasone Supp. Test (S)**
(canine 0.1 mg/kg)
- ☐ **Cortisol, baseline, pre** 20017
- ☐ **Cortisol, post High-dose Dex** 200xx
  Specify _____ hr and _____ hr post Dex

Combined Tests

☐ **Combined High Dex Supp/ACTH Response (S)**
(canine 0.1 mg/kg Dex; feline: 0.1 mg/kg)
- ☐ **Cortisol, baseline, pre** 20017
- ☐ **Cortisol, post High Dex** 200xx
  Specify _____ hr and _____ hr post Dex
- ☐ **Cortisol, post ACTH** 200xx
  Specify _____ hr and _____ hr post ACTH

Monitoring Tests

☐ **ACTH Stimulation/Response Test (S)**
- ☐ **Cortisol, baseline, pre** 20017
- ☐ **Cortisol, post ACTH** 200xx
  Specify _____ hr and _____ hr post ACTH

Specialty Tests

- ☐ **Aldosterone, baseline, pre** 20002
- ☐ **Aldosterone, post (specify hour)** 200xx
  Specify _____ hr and _____ hr post ACTH
  (S or P for each test)

PARATHYROID FUNCTION

☐ **Basic Parathyroid Profile (S)*** 20033
(Parathyroid hormone (PTH) & ionized calcium)

☐ **Malignancy Profile (S & EDTA P)*** 20030
(PTH, ionized calcium, parathyroid hormone related protein (PTHrP))

☐ **Vitamin D Profile (S)*** 20035
(PTH, ionized calcium, 25-hydroxyvitamin D)

☐ **Parathyroid Hormone Related Protein (EDTA P)*** 20004

☐ **25-Hydroxyvitamin D (S or P)*** 20001

☐ **1,25-Dihydroxyvitamin D, Calcitriol (S or P)*** 20524

☐ **Ionized Calcium** (stand-alone) **(S)** 20026

☐ **Total Calcium** (stand-alone) **(S)** 10381

PANCREATIC FUNCTION

☐ **Serum Insulin and Glucose, baseline fasting (S)** 20008

☐ **Glucose Tolerance Test** (1 g/kg) (dog & cat) **(S)**
- ☐ **Insulin and Glucose, baseline, pre (S)** 20008
- ☐ **Insulin and Glucose, post glucose (S)** 200xx
  ☐15, ☐ 30, ☐ 45, ☐ 60 min, _____ hr post glucose

☐ **Insulin Autoantibodies (S)** 20031

GASTRIC FUNCTION

☐ **Gastrin, fasting baseline (S)*** 20007

☐ **Post**, specify treatment and times: 20025
_____

PITUITARY FUNCTION

☐ **Endogenous ACTH (EDTA P)*** 20006

☐ **Post TRH**, specify _____ min and _____ min post TRH

☐ **Insulin-like Growth Factor-1; IGF-1 (S)*** 20005

DRUG MONITORING

☐ **Phenobarbital (S)** 20034

DELIVERY SERVICE:
MSU VDL Endocrinology
4125 Beaumont Road
Lansing, MI 48910 8104

U.S. POSTAL ADDRESS:
MSU VDL Endocrinology
P.O Box 30076
Lansing, MI 48909 7576

Test	Sample Required	Volume Required	Protocol	Shipping and Handling	Special Instructions/Comments
ACTH Response Test, Cortisol	Serum	0.5 mL ea. sample	For Dogs or Cats. Collect baseline sample. If using Cortrosyn, administer 5 ug/kg IV and obtain post sample 1 hr later. If using ACTH gel, administer 2.2 IU/kg IM and collect post sample at 2 hr for dogs, or 1 hr for cats.	Refrigerate or freeze, ship on ice. Should arrive either overnight or second-day.	Separate samples within 30 min of collection. This test is used to diagnose hypoadrenocorticism, hyperadrenocorticism and to monitor trilostane or mitotane therapy. It is also the best adrenal function test for diagnosis of iatrogenic hyperadrenocorticism.
ACTH Response Test, Aldosterone	EDTA plasma or Serum	0.5 mL ea. sample	Follow ACTH Response test protocol.	Refrigerate or freeze, ship on ice. Should arrive either overnight or second-day.	Separate EDTA plasma within 30 min of sampling.
ACTH, Endogenous	EDTA plasma	1.0 mL	Fasting sample. Centrifuge EDTA tube immediately after collection, pipet plasma into a PLASTIC tube, freeze.	Freeze, ship on ice via overnight courier. Must arrive below 60 F.	Endogenous ACTH is used to differentiate adrenal-based from pituitary-based hyperadrenocorticism. Diagnosis of hyperadrenocorticism using a LDDST or ACTH response test should be confirmed prior to eACTH determination.
Calcitriol, 1,25-Dihydroxyvitamin D	Plasma or Serum	1.0 mL	Fasting sample. Allow serum to clot at room temperature for 30-60 min prior to separation. Centrifuge to separate serum.	Freeze, ship on ice via overnight courier.	Avoid exposure to light.
Combined High Dose Dexamethasone Suppression Test /ACTH Response Test	Serum	0.5 mL ea. sample	For Dogs or Cats. Collect baseline sample, administer 0.1 mg dex/kg IV. Obtain second sample 2 - 4 hr later. Then follow ACTH Response Test protocol.	Refrigerate or freeze, ship on ice. Should arrive either overnight or second-day.	Separate samples within 30 min of collection. This test is used to screen for hyperadrenocorticism. Some pituitary tumors will suppress normally with this high dose of dexamethasone. Followed by an ACTH response test.
Equine Dexamethasone Suppression Test	Serum	0.5 mL ea. sample	For Horses. Collect baseline sample at approx 5pm; administer 20 mg dex/500 kg BW IM; Collect post samples 15 and 19 hrs later.	Refrigerate or freeze ship on ice. Should arrive either overnight or second-day.	Separate samples within 30 min of collection.
Gastrin	Serum	1.0 mL	Fasting sample.	Freeze, ship on ice via overnight courier.	May be falsely elevated if the animal is receiving cimetadine.
High Dose Dexamethasone Suppression Test (HDDST)	Serum	0.5 mL ea. sample	For Dogs. Collect baseline sample, administer dex (0.1 mg mg/kg IV or 0.015 mg/kg IM). Obtain samples at 4 hrs and at 8 hrs post dexamethasone (total of 3 samples).	Refrigerate or freeze, ship on ice. Should arrive either overnight or second-day.	Separate samples within 30 min of collection. This test is used to differentiate pituitary-based hyperadrenocorticism.
IGF-1	Serum	0.5 mL	Fasting not necessary.	Freeze, ship on ice via overnight courier.	Provides indirect assessment of growth hormone production.
Insulin/Glucose	Serum	1.0 mL	Fasting sample. For glucose tolerance testing, obtain fasting sample, infuse glucose 1.0 g/kg IV over 30 sec, obtain post samples at 15, 30, 45, and 60 min.	Refrigerate or freeze, ship on ice.	Separate serum within 30 min of collection. Used to diagnose insulinoma. Also used to document insulin dysregulation in horses.
Low Dose Dexamethasone Suppression Test (LDDST)	Serum	0.5 mL ea. sample	For Dogs. Collect baseline sample, administer 0.01 mg dex/kg IM. Obtain samples at 4-6 hrs, and at 8 hr post dex (total of 3 samples).	Refrigerate or freeze, ship on ice. Should arrive either overnight or second-day.	Separate samples within 30 min of collection. This test is used to diagnose hyperadrenocorticism and may differentiate pituitary-based hyperadrenocorticism. May be followed by an ACTH response test.
Malignancy Profile (PTH, ionized calcium, and PTHrP)	Serum AND EDTA Plasma	1.0 mL Serum AND 0.5 mL Plasma	Fasting samples. Allow serum to clot at room temp for 30 to 60 min prior to separation. Centrifuge EDTA tube and pipet plasma into a plain tube (label as plasma).	Freeze, ship on ice via overnight courier. Must arrive below 60 F.	Avoid lipemia and hemolysis. DO NOT SEND an EDTA tube without separating the plasma.
OFA Canine Thyroid Registry	Serum	2.0 mL	Fasting sample.	Freeze, ship on ice via overnight courier. Must arrive below 60 F.	Avoid hemolysis and lipemia. Owner must submit a separate check made out to OFA. Completed OFA application form must be enclosed. Animal must not have received thyroid therapy for 3 months prior. Results will not be available by telephone.
Parathyroid Profile, Basic (PTH and ionized calcium)	Serum (required for ionized calcium)	1.0 mL	Fasting sample. Allow serum to clot at room temp for 30 to 60 min prior to separation.	Freeze, ship on ice via overnight courier. Must arrive below 60 F.	Avoid lipemia and hemolysis.
Parathyroid hormone related protein (PTHrP)	EDTA Plasma	1.0 mL	Fasting sample. Centrifuge EDTA tube and pipet plasma into a plain tube (label as plasma).	Freeze, ship on ice via overnight courier. Must arrive below 60 F.	Avoid lipemia and hemolysis. DO NOT SEND an EDTA tube without separating the plasma.
Phenobarbital	Serum	0.5 mL	Take sample 2 or more hours post phenobarbital.	No special requirements.	Phenobarbital concentrations are slightly lower in samples in serum separator tubes. Steady state concentrations are reached after 2-3 wks of treatment.
Progesterone	Serum	0.5 mL	For ovarian remnant determination: Dog: sample 7-14 days after signs of estrus end; Cats: Sample 7-14 days after induction of ovulation by manual stimulation or giving HCG 500 IU/kg IM.	Refrigerate or freeze, ship on ice. Should arrive either overnight or second-day.	See website, Endocrinology Section link “Assessment of Reproduction”.
T3 Suppression Test, Feline - Standard or Premium	Serum	1.5 mL (standard); 2.0 mL (premium)	Collect baseline sample. Give 25 ug T3 (Cytomel) at 8 hr intervals for 6 or 7 treatments. Collect post sample 2-4 hrs after last treatment.	If premium, refrigerate or freeze and ship on ice to arrive overnight or second-day.	Baseline serum sample may be kept refrigerated or frozen so that both samples may be shipped together.
Testosterone	Serum	0.5 mL	For Dog or Cat: baseline sample usually sufficient. Horse- baseline; 30 min, 1 and 2 hr post HCG injection (6000-12000 IU/horse IV or IM Dog GnRH Response test: baseline, 1 & 2 hr post GnRH 0.22 ug/kg IV	Refrigerate or freeze, ship on ice.	A baseline sample is often adequate in dogs and cats. An HCG response test is often needed in horses.
Thyroid Profile, Canine (Diagnostic or Monitoring)- Standard or Premium	Serum	2.0 mL	For monitoring thyroid supplementation, collect sample 3-8 hr post pill & specify type of therapy, dose, & time post pill.	If premium, refrigerate or freeze and ship on ice to arrive overnight or second-day.	Avoid hemolysis and lipemia.
Thyroid Profile, Feline or Other – Standard or Premium	Serum	1.5 mL (standard); 2.0 mL (premium)	Timing of sample not important.	If premium, refrigerate or freeze and ship on ice to arrive overnight or second-day.	Avoid hemolysis and lipemia.
Urinary Cortisol:Creatinine Ratio	Urine	2 mL	Have owner collect urine at home under non-stressful conditions.	Refrigerate or freeze, ship on ice. Should arrive either overnight or second-day.	The urinary cortisol:creatinine ratio is a screening test for hyperadrenocorticism. It is also positive with stress, and in many nonadrenal illnesses.
Vitamin D, 25-hydroxy	Serum	0.5 mL	Fasting sample. Allow serum to clot at room temp for 30 to 60 min prior to separation.	Freeze, ship on ice via overnight courier.	Avoid exposure to light. Measured if inadequate or excessive vitamin D ingestion is suspected.
Vitamin D Profile (PTH, ionized calcium, and 25-hydroxyvitamin D)	Serum	1.5 mL	Fasting sample. Allow serum to clot at room temp for 30 to 60 min prior to separation.	Freeze, ship on ice via overnight courier.	Avoid lipemia and hemolysis.