TEST: Erythrocyte Transketolase Activity Coefficient (ETKAC) and Basal Activity Assay

PRINCIPLE:

Thiamine (vitamin B1) is the precursor to the coenzyme thiamine pyrophosphate (TPP), also termed thiamine diphosphate (TDP/ThDP). Thiamine is an essential B vitamin in humans that is required for carbohydrate metabolism, and nerve function. Frank or severe deficiencies in thiamine results in Beriberi and Wernicke-Korsakoff syndrome. Activity of erythrocyte enzymes transketolase (ETK), can be used as a marker of thiamine status. This is important as in some cases blood vitamin or mineral levels do not correlate well with absolute symptomology or the clinical diagnosis of the vitamin. For more in-depth details about the ETKAC assay, see the following link: https://rfums-bigtree.s3.amazonaws.com/files/resources/erythrocyte-transketolase-activity-coefficient-and.pdf

SPECIMEN COLLECTION AND PREPARATION:
Preferred specimen is two EDTA lavender top tubes (minimum of one) to be sent refrigerated. Sample should arrive in lab within 48 hours of collection. Sample should be sent Sunday-Wednesday to avoid shipping delay which can compromise sample integrity

METHOD:
Evaluation of erythrocyte transketolase enzyme activity utilizing spectrophotometry

INTERPRETATION:

Thiamine Status	ETKAC
Sufficiency	<1.15
Insufficiency - Moderate Risk of Deficiency)	1.15-1.25
High Risk of Deficiency	>1.25

ETK Basal Activity	
Lower Cut-off	0.59 U/gHb
Upper Cut-off	1.00 U/gHb
Clinically Verified Cut-off for Thiamine Deficiency given Normal Enzyme Levels	<0.59 U/gHb

TURNAROUND TIME: 10 business days