

**PROTOCOL FOR PYRUVATE ASSAY:  
BLOOD COLLECTION PROCESSING AND TRANSPORT**

**Preparation:**

**AMDC responsibilities:**

- Prior consultation with Biochemical Genetics Lab (BGL) at BC Children's hospital is required before proceeding with this test
- Discuss test with Clinical Chemist on-call at VGH
- Arrange appropriate requisition for test to ensure that it is collected at date/time agreed to in consultation with Clinical Chemistry at VGH and Biochemical Genetics Lab at BCCH
- Advise patient to fast for the test

**VGH lab responsibilities:**

- Call to arrange transport of the two special tubes (perchloric acid tubes) from Biochemical Genetics Lab at BC Children's hospital to VGH lab
- have ice available for chilling the tubes ahead of time and transportation of the specimen to the lab; *tubes containing 8% perchloric acid must be kept cold prior to testing, either in a fridge or on wet ice*
- Please use safety precautions when handling perchloric acid, including wearing gloves and protective clothing to protect in the event of spills or splashes. Perchloric acid is a strong corrosive acid and is also an oxidizing agent.
- Ensure that blood collection staff are familiar with collection technique
- Arrange transport of pyruvate tubes to Biochemical Genetics Lab once collected and processed

**Collection, sample handling and transport procedure:**

- collection can be coordinated with VGH lab for inpatients and with BCCH lab for outpatients
- do not use a tourniquet for sample collection
- plasma lactate is mandatory and must be collected at the same time as the pyruvate. *BGL cannot use a lactate results from a previous draw. Since the calculation is for a lactate / pyruvate ratio, BGL is unable to interpret the data without the lactate result.*
  - Draw 3 – 4 mL blood with minimum stasis into a heparin vacutainer.
  - Quickly fill a syringe with the blood and transfer exactly 1 mL blood into each pyruvate tube (2 mL in total for two tubes).
  - Shake vigorously for 30 seconds.
  - Keep the blood cold (on wet ice) for additional 5 minutes to assure complete protein precipitation.
  - Centrifuge 10 minutes at approximately 1500 g.
  - Remove each clear supernatant to clean tubes giving a total of two tubes.
  - Transport to Biochemical Genetics Lab, C&W Hospital on ice packs, on same day via Dynamex Courier.

**RE:**

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Transport via Dynamex courier is necessary to avoid delay in handling by C&W Central Processing. If unable to transport on same day, keep samples at 4 C and transport the following day.

**Note:** Two pyruvate tubes are required for BGL to run test in duplicate.

**Turnaround time:**

-7 days for STAT and 1 month for NON STAT

**Result notes:**

- if the lactate result is normal for the same draw as the pyruvate, the pyruvate test may not be performed as the result will not give any valuable information. This applies even if there have been previously reported high lactate levels. BGL's doctor-on-call will review this information for each patient sample to approve pyruvate for testing.

**Interpretation:**

- lactate to pyruvate ratio is increased in patients with defects in the respiratory chain and any cause of secondary lactic acidemia.
- increased pyruvate levels with a normal lactate to pyruvate ratio may indicate pyruvate dehydrogenase deficiency

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