

## Diabet type || connection with Anemia, HPLC, HbA1c

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The G8 Analyzer is the next generation of Tosoh's leading HPLC testing systems for fast and accurate HbA1c results. The analyzer dilutes the whole blood specimen with Hemolysis & Wash Solution and then injects a small volume of the treated specimen onto the TSKgel Glyco HSi Variant Column. Separation is achieved by utilizing differences in ionic interactions between the cation exchange group on the column resin surface and the hemoglobin components in a step gradient elution. The hemoglobin fractions (designated as A1a, A1b, F, LA1c, SA1c, A0, and H-V0, H-V1, H-V2) are subsequently removed from the column material by performing a step-wise elution using Elution Buffers HSi Variant 1, 2, and 3 that have specific salt and pH concentrations.

The separated hemoglobin components pass through the LED photometer flow cell where changes in absorbance are measured at 415nm. The G8 software integrates and reduces the raw data, and then calculates the relative percentages of each hemoglobin fraction. The print-out consists of the numerical results and the chromatogram. This represents the changes in absorbance versus retention time for each peak fraction. An analysis requires only 1.6 minutes.

The study was conducted on 150 patients, of which 80% were diabet type II, age 40-65 years, with HbA1c ranging from 6.9-11%, HbA from 6-8, HbF of over 1% -8% (in 48% of cases was HbF positive), the control group were non-diabetic, suspect, dyslipidemia, patients with no signs of type II diabetes, the reason for testing being because they had high insulin resistance, or moderate, some of these patients were with polycystic ovary syndrome. In addition to the absolute accuracy of the HPLC method in testing HbA1c, in this study we found HbF positive of patients with type II diabet, which is leading us to anemia, and the cause of this anemia is thought to be impairment of renal function, such as diabetic nephropathy - complication of type II diabet, but a still unclear mechanism between abnormal HbF congenital and type II diabet will to remain uninvolved as we were not able to test all the patients for Hb electrophoresis.

### Recent Publications

1. Food intolerance and Autism, American journal Drug delivery and therapeutics
2. H2 breath test and lactose, fructose malabsorption, ACTA scientific
3. Hypovitaminosis D and Autism
4. From casein to casomorphine, from Gluten to gliadinomorphine, shows a strong association with autism etiology, and treatment. The ASD problem is food and biochemistry, these make the change of the genetic mutations- Nutritional, science and food Chemistry- on June:22-23.2020-Toronto, as speaker, oral presentation

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5. Diabet type II related with anemia. HPLC is gold standard method for glycosylated hemoglobin(HbA1c), who detects abnormal forms of Hemoglobin, such as HbF positive in other diseases as: anemia, congenital hemoglobinopathy, deep venous thrombosis, thyrotoxicosis and some neoplasms.
6. Zinc deficiency connection with Autism
7. Homocystein and ICV,fetal HgB findings in DVT(deep vein thrombosis).

### Biography

Hetemi Luljeta started working in Olive medical Laboratory and now she is currently working as a Resident Doctor in Biochemistry Institute Skopje, North Macedonia.

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