



Concerns: Pterines CSF  
To: Requesting physicians  
Date: 1-3-2021

Dear colleague,

Due to our collaboration/alliance within Amsterdam UMC, the test for pterines in CSF will be carried out by the Laboratory Genetic Metabolic Diseases (GMZ) at location AMC from the 1<sup>st</sup> of March 2021. This has resulted in some changes that we want to inform you about.

#### Method

Test	Material	Method
Pterines (CSF)	CSF (without DTE), 250 µl on ice, send frozen on dry ice. The CSF collection schedule has been adjusted, the fraction with DTE has been removed, see enclosure.	The method changes from HPLC electrochemical detection (ECD) and fluorescence to HPLC fluorescence only.  Tetrahydrobiopterin (BH4), dihydrobiopterin (BH2) and free biopterin are measured together as total biopterin

#### Reference values

This has the following consequences for the reference values:

Test	Unit	Current reference values VUmc	New reference values AMC and VUMC*
Pterines (CSF)	nmol/L	BH4: <1 year: 20-70 1 – 10 year: 10-40 >10 year: 10-20 BH <sub>2</sub> : All ages: <14 Neopterine: All ages: 9-30	For all ages: Biopterine: 10-50 Neopterine: 9-40 Pterine: 2-25

\*See for the most up-to-date reference values the result report.

#### Difference in results

In the adjusted method, tetrahydrobiopterin (BH4), dihydrobiopterin (BH2) and free biopterin are measured together as total biopterin. Therefore, the results cannot be compared one-on-one.

### Reporting of the result

The test carried out by the GMZ will be reported by GMZ via a result letter, which together with the other results will be sent via the usual way (by post).

Nothing will change in the turn-around-time of the test, this remains 1 month. This test will be performed under the ISO15189 accreditation number M154

If you only request the test pterines in CSF which is now measured by the GMZ, location AMC, we request that you send the application to:

Laboratory Genetically Metabolic Diseases (F0-132)

Amsterdam UMC, location AMC

Meibergdreef 9

1105 AZ Amsterdam

The Netherlands

See also [www.labgmd.nl](http://www.labgmd.nl) for the request form and liquor protocol.

If you have questions due to these changes, you can of course contact us.

Sincerely,

Dr. Mirjam M.C. Wamelink  
Lab. specialist clinical genetics  
Metabolic Unit  
Amsterdam UMC, location VUmc  
+31 20 4442880  
[m.wamelink@amsterdamumc.nl](mailto:m.wamelink@amsterdamumc.nl)

Dr. Fred M. Vaz, clinical chemist  
Dr. Susan M.I. Goorden, clinical chemist  
Dr. Wim Kulik, lab. specialist clinical genetics  
Laboratorium Genetisch Metabole Ziekten  
Amsterdam UMC, location AMC  
+31 205665393  
[gmz\\_metab@amc.nl](mailto:gmz_metab@amc.nl)

Enclosure: CSF protocol, location VUmc

## Location: VUmc

Protocol for analysis of neurotransmitters and other classes of compounds in CSF:

Fraction	Volume (ml)	Analysis	Action
1	0.5	CAT, 5-MTHF	freeze immediately
2	1	amino acids, sialic acid, N-acetylaspartylglutamate	freeze immediately
3	1	SAM/SAH	freeze immediately
4	1.5	GABA (free and total)	freeze immediately
5	1	routine	to clinical chemistry lab
6	1-2	left over and future	freeze immediately

If not all analysis are requested it is possible to shift with the analysis. However: CAT always from fraction 1 (first 0.5 ml) and GABA do not use the first 2 ml.

Other analyses like e.g. sugars and polyol,  $\beta$ -alanine, homocysteine, alpha- amino adipic semialdehyde (AASA) and B6-vitamins can be measured on request in CSF.

Abbreviation analysis:

CAT: Catecholamines (Homovanillic acid, 5-hydroxy-indole-acetic acid and 3-O-methyl-DOPA)

5-MTHF: 5-methyltetrahydrofolate

SAM/SAH: S-adenosylmethionine/S-adenosylhomocysteine

GABA: Gamma-aminobutyric acid

### Number the CSF tubes to Fraction number!

We have age-related control values for the specific fractions mentioned above. One of our technicians always goes to the sampling and immediately freezes the samples in dry ice at the bed site. After freezing the samples they may not be thawed. The samples have to be frozen on dry ice.

### Directions for sending samples

All the samples must be sent on dry ice, so they will be kept frozen for a period of 48 hours.

Data of patient to be mentioned:

-first-name, family-name, date of birth, sex and clinical indication

Data of the specimen to be mentioned

-kind of sample and date of collecting the sample

The package can be sent to us Monday to Wednesday. If this is not possible, it may be sent on Thursday or Friday, but there is a risk that the samples will be thawed before reaching our laboratory.

Address to send to:

**Dr. M.M.C. Wamelink**

**Amsterdam UMC, location VUmc**

**Department of Clinical Chemistry Metabolic Unit, PK 1X-009**

**Goederenontvangst –BS6**

**Van der Boechorststraat 6**

**1081 BT Amsterdam, The Netherlands**

**Tel. 31 20 444 28 81**

**Fax. 31 20 444 03 05**

**Email: [m.wamelink@amsterdamumc.nl](mailto:m.wamelink@amsterdamumc.nl)**