

**How to send samples?**

A centrifuged aliquot of cerebrospinal fluid (minimal volume 1 ml) can be sent to our laboratory for analysis.

**Note:** CSF for analysis of pyruvate should be immediately conserved to inhibit the conversion of pyruvate to lactate. Upon request we can send tubes containing a conservative for this analysis. Please contact our laboratory for additional information.

The CSF should be preferably sent frozen on dry ice to our laboratory; only when it can be delivered to our laboratory within 24 hours after withdrawal dispatch at room temperature is possible.

**Address for sending material:**

Radboud University Medical Center  
Radboudumc Diagnostic Laboratory  
Route 815  
Attn. Neurochemistry, dr. MM Verbeek  
PO 9101  
6500 HB NIJMEGEN  
The Netherlands

Contact information :

phone: #-31-24-3614567

fax: #31-24-3668754

e-mail: [marcel.verbeek@radboudumc.nl](mailto:marcel.verbeek@radboudumc.nl)

**Analysis frequency**

Lactate: daily.

Pyruvate: weekly.

**Reference values****Lactate ( $\mu\text{M}$ )**

Age	Lower range	Upper range	Percentile	N.
0-4 weeks	1000	2200	10-90	195
4 weeks– 6 mnths	1030	2020	Id	142
6 mnths – 10 yr	1130	2150	Id	159
10 – 18 yr	1170	1810	Id	196
18 – 30 yr	1090	1800	Id	1002
30 – 40 yr	1170	1850	Id	1235
40 – 50 yr	1260	1990	Id	800

PROTOCOL	<b>LACTATE AND PYRUVATE</b>	VALID UNTIL 01-01-2020
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50 – 60 yr	1290	1950	ld	610
60 – 70 yr	1350	2000	ld	774
70 – 80 yr	1410	2130	ld	1069
>80yr	1420	2220	ld	1120

Metabolite	Concentration
Pyruvaat	96 - 145 $\mu$ M
Lactate / Pyruvate ratio	11,7 - 16,5

**Analysis costs**

Please contact us