

EQA round: PRO2/23 - Specific Proteins

Deadline: 22.9.2023

Setup: groups - measurement principle; minimal size of the groups n = 5

| | | |
|---|--|---|
| RoM = robust average | AV = assigned value | D _{max} = acceptable difference |
| SD = standard deviation | CVP = consensus of all participants | LL = lower limit |
| CV = coefficient of variation | CVPG = consensus of the participants' groups | UL = upper limit |
| N _{tot} = total number of the results | U _{AV} = expanded uncertainty of the assigned value (k = 2) | N _{eva} = number of the results assessed |
| N _{out} = number of the results removed before calculation | | N _{suc} = number of successful results |
| | | S _{rel} = relative success |

| Test Sample Group | [unit] | RoM | SD | CV [%] | N _{tot} | N _{out} | Comparability | | | | | N _{eva} | N _{suc} | S _{rel} [%] | |
|---|--------|-------|-------|-----------|------------------|------------------|-------------------------------------|-----------------|------------------|-----|-------|------------------|------------------|-------------------------|-----|
| | | | | | | | AV | U _{AV} | D _{max} | LL | UL | | | | |
| (46) α-1-antitrypsin | [g/L] | | | | 86 | | | | | | | 86 | 85 | 99 | |
| Sample A | | 1,17 | 0,14 | 12 | 86 | | CVP | 1,17 | 0,037 | 25% | 0,877 | 1,47 | 86 | 85 | 99 |
| (2) Immunoturbidimetry | | 1,15 | 0,13 | 12 | 66 | 0 | | | | | | | 66 | | |
| (3) Immunonephelometry | | 1,26 | 0,13 | 11 | 20 | 0 | | | | | | | 20 | | |
| Sample B | | 1,41 | 0,17 | 12 | 86 | | CVP | 1,41 | 0,044 | 25% | 1,05 | 1,77 | 86 | 85 | 99 |
| (2) Immunoturbidimetry | | 1,38 | 0,14 | 10 | 66 | 0 | | | | | | | 66 | | |
| (3) Immunonephelometry | | 1,54 | 0,22 | 15 | 20 | 0 | | | | | | | 20 | | |
| (53) α-2-macroglobulin | [g/L] | | | | 22 | | | | | | | 22 | 20 | 91 | |
| Sample A | | 0,835 | 0,066 | 7,9 | 22 | | CVP | 0,835 | 0,034 | 21% | 0,659 | 1,02 | 22 | 21 | 95 |
| (2) Immunoturbidimetry | | 0,89 | 0,03 | 3,3 | 9 | 0 | | | | | | | 9 | | |
| (3) Immunonephelometry | | 0,803 | 0,059 | 7,4 | 13 | 0 | | | | | | | 13 | | |
| Sample B | | 1,13 | 0,079 | 7 | 22 | | CVP | 1,13 | 0,041 | 21% | 0,892 | 1,37 | 22 | 21 | 95 |
| (2) Immunoturbidimetry | | 1,16 | 0,087 | 7,5 | 9 | 0 | | | | | | | 9 | | |
| (3) Immunonephelometry | | 1,12 | 0,091 | 8,1 | 13 | 0 | | | | | | | 13 | | |
| (45) Albumin | [g/L] | | | | 145 | | | | | | | 145 | 140 | 97 | |
| Sample A | | 36,8 | 1,5 | 4 | 145 | | CVP | 36,8 | 0,3 | 10% | 33,1 | 40,5 | 145 | 141 | 97 |
| (0) Not specified | | 36,4 | 0,96 | 2,7 | 5 | 0 | | | | | | | 5 | | |
| (1) BCG | | 36,9 | 1,4 | 3,8 | 130 | 0 | | | | | | | 130 | | |
| (2) BCP | | 35,7 | 2,4 | 6,9 | 6 | 0 | | | | | | | 6 | | |
| Other | | | | | 4 | 0 | | | | | | | 4 | | |
| | | | | | | | 4x 99 | | | | | | | | |
| Sample B | | 46,1 | 1,6 | 3,5 | 145 | | CVP | 46,1 | 0,33 | 10% | 41,4 | 50,8 | 145 | 144 | 99 |
| (0) Not specified | | 46 | 1,5 | 3,2 | 5 | 0 | | | | | | | 5 | | |
| (1) BCG | | 46,1 | 1,6 | 3,4 | 130 | 0 | | | | | | | 130 | | |
| (2) BCP | | 45,2 | 1,8 | 3,9 | 6 | 0 | | | | | | | 6 | | |
| Other | | | | | 4 | 0 | | | | | | | 4 | | |
| | | | | | | | 4x 99 | | | | | | | | |
| (47) C3 complement | [g/L] | | | | 128 | | | | | | | 128 | 124 | 97 | |
| Sample A | | 2,06 | 0,1 | 4,9 | 128 | | CVP | 2,06 | 0,022 | 14% | 1,77 | 2,35 | 128 | 124 | 97 |
| (2) Immunoturbidimetry | | 2,06 | 0,1 | 4,9 | 103 | 0 | | | | | | | 103 | | |
| (3) Immunonephelometry | | 2,09 | 0,1 | 4,9 | 25 | 0 | | | | | | | 25 | | |
| Sample B | | 2,28 | 0,11 | 4,8 | 128 | | CVP | 2,28 | 0,023 | 14% | 1,96 | 2,6 | 128 | 127 | 99 |
| (2) Immunoturbidimetry | | 2,29 | 0,11 | 4,7 | 103 | 0 | | | | | | | 103 | | |
| (3) Immunonephelometry | | 2,23 | 0,11 | 4,7 | 25 | 0 | | | | | | | 25 | | |
| (52) C4 complement | [g/L] | | | | 128 | | | | | | | 128 | 126 | 98 | |
| Sample A | | 0,238 | 0,019 | 7,9 | 128 | | CVP | 0,238 | 0,004 | 21% | 0,188 | 0,288 | 128 | 126 | 98 |
| (2) Immunoturbidimetry | | 0,235 | 0,019 | 8 | 102 | 0 | | | | | | | 102 | | |
| (3) Immunonephelometry | | 0,249 | 0,01 | 4,1 | 26 | 0 | | | | | | | 26 | | |
| Sample B | | 0,528 | 0,036 | 6,8 | 128 | | CVP | 0,528 | 0,008 | 21% | 0,417 | 0,639 | 128 | 127 | 99 |
| (2) Immunoturbidimetry | | 0,526 | 0,039 | 7,3 | 102 | 0 | | | | | | | 102 | | |
| (3) Immunonephelometry | | 0,535 | 0,026 | 4,8 | 26 | 0 | | | | | | | 26 | | |
| (55) Total protein | [g/L] | | | | 202 | | | | | | | 202 | 201 | 100 | |
| Sample A | | 47,1 | 3,6 | 7,7 | 202 | | CVP | 47,1 | 0,62 | 18% | 38,6 | 55,6 | 202 | 201 | 100 |
| (1) Biuret | | 47,2 | 3,6 | 7,6 | 199 | 0 | | | | | | | 199 | | |
| Other | | | | | 3 | 0 | | | | | | | 3 | | |
| | | | | | | | 2x 0, 1x 99 | | | | | | | | |
| Sample B | | 62,7 | 3,5 | 5,5 | 202 | | CVP | 62,7 | 0,6 | 18% | 51,4 | 74 | 202 | 202 | 100 |
| (1) Biuret | | 62,8 | 3,4 | 5,5 | 199 | 0 | | | | | | | 199 | | |
| Other | | | | | 3 | 0 | | | | | | | 3 | | |
| | | | | | | | 2x 0, 1x 99 | | | | | | | | |
| (49) Ceruloplasmin | [g/L] | | | | 68 | | | | | | | 64 | 63 | 98 | |
| Sample A | | 0,462 | 0,07 | 15 | 68 | | | | | | | 64 | 64 | 100 | |
| (2) Immunoturbidimetry; (1) Abbott | | 0,525 | 0,022 | 4,2 | 7 | 0 | CVPG | 0,525 | 0,022 | 19% | 0,425 | 0,625 | 7 | | |
| (2) Immunoturbidimetry; (58) Beckman Coulter (AU) | | 0,433 | 0,019 | 4,5 | 8 | 0 | CVPG | 0,433 | 0,015 | 19% | 0,35 | 0,516 | 8 | | |
| (2) Immunoturbidimetry; (60) Roche | | 0,395 | 0,016 | 4 | 15 | 0 | CVPG | 0,395 | 0,01 | 19% | 0,319 | 0,471 | 15 | | |
| (2) Immunoturbidimetry; (91) Binding Site | | 0,411 | 0,018 | 4,3 | 10 | 0 | CVPG | 0,411 | 0,014 | 19% | 0,332 | 0,49 | 10 | | |
| (2) Immunoturbidimetry; (116) Sentinel Diagnostics | | 0,505 | 0,007 | 1,5 | 5 | 0 | CVPG | 0,505 | 0,021 | 19% | 0,409 | 0,601 | 5 | | |
| (3) Immunonephelometry; (12) Beckman Coulter | | 0,455 | 0,026 | 5,7 | 5 | 0 | CVPG | 0,453 | 0,032 | 19% | 0,366 | 0,54 | 5 | | |
| (3) Immunonephelometry; (149) Siemens (Dade, BN, Dimension) | | 0,541 | 0,023 | 4,2 | 12 | 0 | CVPG | 0,541 | 0,016 | 19% | 0,438 | 0,644 | 12 | | |
| Other | | | | | 6 | 0 | | | | | | | 2 | | |
| | | | | | | | 2x 2/5, 2x 2/12, 1x 2/162, 1x 3/162 | | | | | | | | |

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Setup: groups - measurement principle; minimal size of the groups n = 5

| Test Sample Group | [unit] | RoM | SD | CV [%] | N _{tot} | N _{out} | Comparability | | | | | N _{eva} | N _{suc} | S _{rel} [%] | |
|---|--------|-------|-------|-----------|------------------|------------------|---------------|-----------------|------------------|-----|-------|------------------|------------------|-------------------------------------|-----|
| | | | | | | | AV | U _{AV} | D _{max} | LL | UL | | | | |
| Sample B | | 0,714 | 0,097 | 14 | 68 | | | | | | | 64 | 63 | 98 | |
| (2) Immunoturbidimetry; (1) Abbott | | 0,8 | 0,015 | 1,9 | 7 | 0 | CVPG | 0,8 | 0,014 | 19% | 0,648 | 0,952 | 7 | | |
| (2) Immunoturbidimetry; (58) Beckman Coulter (AU) | | 0,635 | 0,037 | 5,8 | 8 | 0 | CVPG | 0,635 | 0,028 | 19% | 0,514 | 0,756 | 8 | | |
| (2) Immunoturbidimetry; (60) Roche | | 0,63 | 0,028 | 4,5 | 15 | 0 | CVPG | 0,63 | 0,018 | 19% | 0,51 | 0,75 | 15 | | |
| (2) Immunoturbidimetry; (91) Binding Site | | 0,667 | 0,031 | 4,6 | 10 | 0 | CVPG | 0,667 | 0,024 | 19% | 0,54 | 0,794 | 10 | | |
| (2) Immunoturbidimetry; (116) Sentinel Diagnostics | | 0,745 | 0,067 | 9 | 5 | 0 | CVPG | 0,745 | 0,19 | 19% | 0,603 | 0,887 | 5 | | |
| (3) Immunonephelometry; (12) Beckman Coulter | | 0,712 | 0,024 | 3,3 | 5 | 0 | CVPG | 0,704 | 0,035 | 19% | 0,57 | 0,838 | 5 | | |
| (3) Immunonephelometry; (149) Siemens (Dade, BN, Dimension) | | 0,815 | 0,023 | 2,8 | 12 | 0 | CVPG | 0,815 | 0,016 | 19% | 0,66 | 0,97 | 12 | | |
| Other | | | | | 6 | 0 | | | | | | | 2 | | |
| | | | | | | | | | | | | | | 2x 2/5, 2x 2/12, 1x 2/162, 1x 3/162 | |
| (51) Haptoglobin | [g/L] | | | | 74 | | | | | | | 74 | 73 | 99 | |
| Sample A | | 1,52 | 0,065 | 4,3 | 74 | | CVP | 1,52 | 0,018 | 13% | 1,32 | 1,72 | 74 | 73 | 99 |
| (2) Immunoturbidimetry | | 1,5 | 0,06 | 4 | 60 | 0 | | | | | | | 60 | | |
| (3) Immunonephelometry | | 1,58 | 0,075 | 4,7 | 14 | 0 | | | | | | | 14 | | |
| Sample B | | 1,34 | 0,055 | 4,1 | 74 | | CVP | 1,34 | 0,016 | 13% | 1,16 | 1,52 | 74 | 73 | 99 |
| (2) Immunoturbidimetry | | 1,34 | 0,05 | 3,8 | 60 | 0 | | | | | | | 60 | | |
| (3) Immunonephelometry | | 1,36 | 0,077 | 5,6 | 14 | 0 | | | | | | | 14 | | |
| (41) IgA | [g/L] | | | | 218 | | | | | | | 218 | 215 | 99 | |
| Sample A | | 1,19 | 0,066 | 5,6 | 218 | | CVP | 1,19 | 0,011 | 14% | 1,02 | 1,36 | 218 | 215 | 99 |
| (2) Immunoturbidimetry | | 1,18 | 0,059 | 5 | 188 | 0 | | | | | | | 188 | | |
| (3) Immunonephelometry | | 1,23 | 0,099 | 8 | 28 | 0 | | | | | | | 28 | | |
| Other | | | | | 2 | 0 | | | | | | | 2 | | |
| | | | | | | | | | | | | | | 1x 0, 1x 99 | |
| Sample B | | 1,46 | 0,062 | 4,2 | 218 | | CVP | 1,46 | 0,01 | 14% | 1,25 | 1,67 | 218 | 218 | 100 |
| (2) Immunoturbidimetry | | 1,46 | 0,06 | 4,1 | 188 | 0 | | | | | | | 188 | | |
| (3) Immunonephelometry | | 1,48 | 0,074 | 5 | 28 | 0 | | | | | | | 28 | | |
| Other | | | | | 2 | 0 | | | | | | | 2 | | |
| | | | | | | | | | | | | | | 1x 0, 1x 99 | |
| (42) IgG | [g/L] | | | | 220 | | | | | | | 220 | 217 | 99 | |
| Sample A | | 0,788 | 0,25 | 31 | 220 | | | | | | | 0 | | | |
| (2) Immunoturbidimetry | | 0,809 | 0,28 | 35 | 192 | 1 | | | | | | 0 | | | |
| (3) Immunonephelometry | | 0,709 | 0,033 | 4,7 | 27 | 0 | | | | | | 0 | | | |
| Other | | | | | 1 | 0 | | | | | | 0 | | | |
| | | | | | | | | | | | | | | 1x 0 | |
| Sample B | | 4,67 | 0,18 | 3,8 | 220 | | CVP | 4,67 | 0,029 | 13% | 4,06 | 5,28 | 220 | 217 | 99 |
| (2) Immunoturbidimetry | | 4,67 | 0,18 | 3,7 | 192 | 0 | | | | | | | 192 | | |
| (3) Immunonephelometry | | 4,66 | 0,19 | 4,1 | 27 | 0 | | | | | | | 27 | | |
| Other | | | | | 1 | 0 | | | | | | | 1 | | |
| | | | | | | | | | | | | | | 1x 0 | |
| (43) IgM | [g/L] | | | | 219 | | | | | | | 219 | 215 | 98 | |
| Sample A | | 0,787 | 0,043 | 5,5 | 219 | | CVP | 0,787 | 0,007 | 18% | 0,645 | 0,929 | 219 | 217 | 99 |
| (2) Immunoturbidimetry | | 0,781 | 0,038 | 4,8 | 190 | 0 | | | | | | | 190 | | |
| (3) Immunonephelometry | | 0,834 | 0,046 | 5,5 | 27 | 0 | | | | | | | 27 | | |
| Other | | | | | 2 | 0 | | | | | | | 2 | | |
| | | | | | | | | | | | | | | 1x 0, 1x 99 | |
| Sample B | | 0,475 | 0,029 | 6 | 219 | | CVP | 0,475 | 0,005 | 18% | 0,389 | 0,561 | 219 | 215 | 98 |
| (2) Immunoturbidimetry | | 0,475 | 0,03 | 6,3 | 190 | 0 | | | | | | | 190 | | |
| (3) Immunonephelometry | | 0,475 | 0,02 | 4,2 | 27 | 0 | | | | | | | 27 | | |
| Other | | | | | 2 | 0 | | | | | | | 2 | | |
| | | | | | | | | | | | | | | 1x 0, 1x 99 | |
| (50) Orosomuroid | [g/L] | | | | 57 | | | | | | | 57 | 50 | 88 | |
| Sample A | | 1,15 | 0,1 | 8,8 | 57 | | CVP | 1,15 | 0,033 | 20% | 0,92 | 1,38 | 57 | 52 | 91 |
| (2) Immunoturbidimetry | | 1,12 | 0,052 | 4,6 | 43 | 0 | | | | | | | 43 | | |
| (3) Immunonephelometry | | 1,25 | 0,2 | 16 | 14 | 0 | | | | | | | 14 | | |
| Sample B | | 1,02 | 0,078 | 7,6 | 57 | | CVP | 1,02 | 0,025 | 20% | 0,816 | 1,23 | 57 | 53 | 93 |
| (2) Immunoturbidimetry | | 1,01 | 0,044 | 4,4 | 43 | 0 | | | | | | | 43 | | |
| (3) Immunonephelometry | | 1,09 | 0,17 | 15 | 14 | 0 | | | | | | | 14 | | |
| (48) Prealbumin | [g/L] | | | | 119 | | | | | | | 119 | 114 | 96 | |
| Sample A | | 0,208 | 0,013 | 6,3 | 119 | | CVP | 0,208 | 0,003 | 17% | 0,172 | 0,244 | 119 | 116 | 97 |
| (2) Immunoturbidimetry | | 0,209 | 0,013 | 6,4 | 109 | 0 | | | | | | | 109 | | |
| (3) Immunonephelometry | | 0,199 | 0,008 | 4,1 | 10 | 0 | | | | | | | 10 | | |
| Sample B | | 0,616 | 0,048 | 7,7 | 119 | | CVP | 0,616 | 0,011 | 17% | 0,511 | 0,721 | 119 | 117 | 98 |
| (2) Immunoturbidimetry | | 0,619 | 0,046 | 7,4 | 109 | 0 | | | | | | | 109 | | |
| (3) Immunonephelometry | | 0,567 | 0,056 | 9,9 | 10 | 0 | | | | | | | 10 | | |

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| Test Sample Group | [unit] | RoM | SD | CV [%] | N _{tot} | N _{out} | Comparability | | | | | N _{eva} | N _{suc} | S _{rel} [%] | |
|--|--------|-------|-------|-----------|------------------|------------------|---|-----------------|------------------|-------|-------|------------------|------------------|-------------------------|----|
| | | | | | | | AV | U _{AV} | D _{max} | LL | UL | | | | |
| (56) Soluble Transferrin Receptor (sTfR) | [mg/L] | | | | 61 | | | | | | | 49 | 46 | 94 | |
| Sample A | | 0,602 | 0,29 | 49 | 61 | | | | | | | 49 | 46 | 94 | |
| (2) EIA (ELISA); (60) Roche | | 0,865 | 0,022 | 2,6 | 5 | 0 | CVPG 0,859 | 0,031 | 20% | 0,687 | 1,04 | 5 | | | |
| (4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter | | 0,414 | 0,019 | 4,5 | 10 | 0 | CVPG 0,415 | 0,011 | 20% | 0,332 | 0,498 | 10 | | | |
| (6) IMT, IMN; (60) Roche | | 0,855 | 0,068 | 8 | 22 | 0 | CVPG 0,859 | 0,031 | 20% | 0,687 | 1,04 | 22 | | | |
| (6) IMT, IMN; (149) Siemens (Dade, BN, Dimension) | | 0,336 | 0,053 | 16 | 7 | 0 | CVPG 0,34 | 0,028 | 20% | 0,272 | 0,408 | 7 | | | |
| (6) IMT, IMN; (999) another manufacturer | | 0,32 | 0,045 | 14 | 5 | 0 | | | | | | 0 | | | |
| Other | | | | | 12 | 1 | | | | | | 5 | | | |
| | | | | | | | 1x 2/12, 2x 2/999, 3x 3/149, 1x 4/58, 3x 6/75, 1x 6/166, 1x 99/12 | | | | | | | | |
| Sample B | | 1,21 | 0,62 | 51 | 61 | | | | | | | 49 | 48 | 98 | |
| (2) EIA (ELISA); (60) Roche | | 1,79 | 0,074 | 4,1 | 5 | 0 | CVPG 1,79 | 0,04 | 20% | 1,43 | 2,15 | 5 | | | |
| (4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter | | 0,797 | 0,057 | 7,2 | 10 | 0 | CVPG 0,801 | 0,04 | 20% | 0,64 | 0,962 | 10 | | | |
| (6) IMT, IMN; (60) Roche | | 1,78 | 0,086 | 4,8 | 22 | 0 | CVPG 1,79 | 0,04 | 20% | 1,43 | 2,15 | 22 | | | |
| (6) IMT, IMN; (149) Siemens (Dade, BN, Dimension) | | 0,769 | 0,025 | 3,3 | 7 | 0 | CVPG 0,754 | 0,022 | 20% | 0,603 | 0,905 | 7 | | | |
| (6) IMT, IMN; (999) another manufacturer | | 0,63 | 0,045 | 7,1 | 5 | 0 | | | | | | 0 | | | |
| Other | | | | | 12 | 0 | | | | | | 5 | | | |
| | | | | | | | 1x 2/12, 2x 2/999, 3x 3/149, 1x 4/58, 3x 6/75, 1x 6/166, 1x 99/12 | | | | | | | | |
| (44) Transferrin | [g/L] | | | | 199 | | | | | | | 199 | 193 | 97 | |
| Sample A | | 0,252 | 0,056 | 22 | 199 | | | | | | | 0 | | | |
| (2) Immunoturbidimetry | | 0,249 | 0,057 | 23 | 189 | 2 | | | | | | 0 | | | |
| (3) Immunonephelometry | | 0,298 | 0,025 | 8,5 | 10 | 0 | | | | | | 0 | | | |
| Sample B | | 1,63 | 0,06 | 3,7 | 199 | | CVP | 1,63 | 0,01 | 12% | 1,43 | 1,83 | 199 | 193 | 97 |
| (2) Immunoturbidimetry | | 1,63 | 0,057 | 3,5 | 189 | 0 | | | | | | 189 | | | |
| (3) Immunonephelometry | | 1,59 | 0,11 | 6,7 | 10 | 0 | | | | | | 10 | | | |