

External Quality Assessment Scheme

Synovial fluid crystals Round 1, 2023

This round is conducted as a collaboration project between Labquality and RCPAQAP.

Specimens

Please find enclosed 3 air dried synovial fluid cytopsin slides S001, S002 and S003.

Caution

Quality control specimens derived from human based material must be handled with the same care as patient samples, i.e. as potential transmitters of serious diseases.

Background information

Sample S001 (LQ751323011)

A 77-year-old man with chronic left lower limb swelling, presented with pain, redness and swelling of the left knee, leg, ankle and foot. Left knee was aspirated.

Sample S002 (LQ751323012)

A 59-year-old man with severe psoriasis, impaired renal function (eGFR 20 mL/min/1.73 m²) and a pancreatic lesion, had experienced knee, toe and finger swelling for several months. Fluid was aspirated from the knee.

Sample S003 (LQ751323013)

An 83-year-old lady presented with her third attack of acute joint pain and swelling within the last two years. The first two episodes affected her left wrist, and the current attack affected her right knee. The knee was aspirated.

Examinations

Monohydrate sodium urate crystals (MSU)

Calcium pyrophosphate dihydrate crystals (CPPD)

Storage and use

After arrival, the samples should be stored at room temperature.

The samples are on the same side as the sample label and inside a white bordered circle. The number of crystals may be greater in the periphery of the sample area than in the centre. No coverslip is included.

Just before you start examining the slide, place a drop of 10 µL of normal serum on top of the sample, put on a dust free coverslip and apply gentle pressure at the clear area to press out excess fluid. Prepared like this the slide corresponds well to a fresh synovial fluid sample; however, it cannot be saved for future reference. If you want to keep the slides permanently you have to leave out serum and coverslip and examine the slides as they are, accepting some loss of optical quality. Analyse as patient samples.

2023-03-28

INSTRUCTIONS

Product no. 2640
LQ751323011-013/AU

Subcontracting: Sample
preparation

If the kit is incomplete or contains
damaged specimens, please report
immediately to info@labquality.fi.

The results should be
reported no later than
April 20, 2023.

Inquiries

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Result reporting

Please enter the results via LabScala (www.labscala.com). Note! If the finding is "Other crystals", please specify it in the Comment field. If you have any questions regarding the round, please contact the EQA Coordinator.

Synovial fluid crystals

S001



S002



S003



Sample 001 | 1

Findings	Total	No crystals	<1 crystal/field, sparse	~ 1 crystal/field, moderate	>1 crystal/field, abundant	Positive (no quantitation)
Monohydrate sodium urate crystals (MSU)	136	<input checked="" type="radio"/> 121 (17.04.2023)	1	3	3	8
Calcium pyrophosphate dihydrate crystals (CPPD)	136	20	29	<input checked="" type="radio"/> 22 (17.04.2023)	23	42
Other crystals	128	<input checked="" type="radio"/> 127 (17.04.2023)	0	0	1	0
Not responded	6					

Sample 002 | 1

Findings	Total	No crystals	<1 crystal/field, sparse	~ 1 crystal/field, moderate	>1 crystal/field, abundant	Positive (no quantitation)
Monohydrate sodium urate crystals (MSU)	136	<input checked="" type="radio"/> 124 (17.04.2023)	6	1	2	3
Calcium pyrophosphate dihydrate crystals (CPPD)	136	120	<input checked="" type="radio"/> 9 (17.04.2023)	1	1	5
Other crystals	128	<input checked="" type="radio"/> 126 (17.04.2023)	0	0	1	1
Not responded	6					

Sample 003 | 1

Findings	Total	No crystals	<1 crystal/field, sparse	~ 1 crystal/field, moderate	>1 crystal/field, abundant	Positive (no quantitation)
Monohydrate sodium urate crystals (MSU)	136	<input checked="" type="radio"/> 120 (17.04.2023)	4	3	3	6
Calcium pyrophosphate dihydrate crystals (CPPD)	136	11	28	<input checked="" type="radio"/> 28 (17.04.2023)	26	43
Other crystals	128	<input checked="" type="radio"/> 127 (17.04.2023)	0	0	0	1
Not responded	6					

Report info

Participants

140 participants from 18 countries.

How to interpret the results

The results are divided into laboratory-specific tables according to the findings and number of crystals. Accepted results are marked with green color and laboratory's own result with a black radio button . In case you have any questions regarding the reports, please contact the EQA Coordinator.

001|Sample 001

Findings	Total	No crystals	<1 crystal/field, sparse	~ 1 crystal/field, moderate	>1 crystal/field, abundant	Positive (no quantitation)
Monohydrate sodium urate crystals (MSU)	136	121	1	3	3	8
Calcium pyrophosphate dihydrate crystals (CPPD)	136	20	29	22	23	42
Other crystals	128	127	0	0	1	0
Not responded	6					

002|Sample 002

Findings	Total	No crystals	<1 crystal/field, sparse	~ 1 crystal/field, moderate	>1 crystal/field, abundant	Positive (no quantitation)
Monohydrate sodium urate crystals (MSU)	136	124	6	1	2	3
Calcium pyrophosphate dihydrate crystals (CPPD)	136	120	9	1	1	5
Other crystals	128	126	0	0	1	1
Not responded	6					

003|Sample 003

Findings	Total	No crystals	<1 crystal/field, sparse	~ 1 crystal/field, moderate	>1 crystal/field, abundant	Positive (no quantitation)
Monohydrate sodium urate crystals (MSU)	136	120	4	3	3	6
Calcium pyrophosphate dihydrate crystals (CPPD)	136	11	28	28	26	43
Other crystals	128	127	0	0	0	1
Not responded	6					

Report info

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External Quality Assessment Scheme

Synovial fluid crystals Round 1, 2023

This round was conducted as a collaboration project between Labquality and RCPAQAP.

Specimens

Samples of this EQA round were three air-dried synovial fluid cytopsin slides. Based on the results obtained in the round, the samples were homogeneous, stable and suitable for the external quality assessment scheme. The materials were sent without temperature control packaging.

The expected results were as follows:

Sample S001 (LQ751323011). The sample contained calcium pyrophosphate dihydrate crystals.

A 77-year-old man with chronic left lower limb swelling, presented with pain, redness and swelling of the left knee, leg, ankle and foot. Left knee was aspirated.

Sample S002 (LQ751323012). Negative.

A 59-year-old man with severe psoriasis, impaired renal function (eGFR 20 mL/min/1.73 m²) and a pancreatic lesion, had experienced knee, toe and finger swelling for several months. Fluid was aspirated from the knee.

Sample S003 (LQ751323013). The sample contained calcium pyrophosphate dihydrate crystals.

An 83-year-old lady presented with her third attack of acute joint pain and swelling within the last two years. The first two episodes affected her left wrist, and the current attack affected her right knee. The knee was aspirated.

Report info

Please see the description of the data analysis on the last page of the laboratory-specific reports and global reports. It is important to read the Final report first, because it contains important information of the samples and results in each round.

Comments – Expert

Sample S001 contained CPPD crystals. In this case, the fluid proved not to be infected, but we should remain ever alert to infection, even when crystals are found. By age 80 years, 30% of people have radiologically evident CPPD crystals.

Sample S002 was from a man with psoriatic arthritis. The swelling of his fingers and toes was diffuse, typical of dactylitis, a feature of psoriatic arthritis. No crystal was seen in the fluid.

Sample S003 was from an elderly woman with a typical history of acute calcium pyrophosphate arthritis. The knee and wrist are frequently involved.

Acute calcium pyrophosphate arthritis is usually a disease of elderly people although cases in middle age are not rare. Knee involvement is common but that does not distinguish from gout. Wrist involvement in an older person favours acute calcium pyrophosphate arthritis (as opposed to gout), whereas great toe metatarsophalangeal or interphalangeal involvement favours gout.

2023-04-28

FINAL REPORT

Product no. 2640

Subcontracting: Sample preparation

Samples sent	2023-03-28
Round closed	2023-04-20
Final report	2023-04-28

Request for correction

Typing errors in laboratory's result forms are on laboratory's responsibility. Labquality accepts responsibility only for result processing. Requests must be notified by writing within three weeks from the date of this letter.

Authorized by

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The substantial overlap of joint involvement between gout and acute calcium pyrophosphate arthritis highlights the need for correct crystal identification using polarized microscopy.

Comments – EQA Coordinator

Of the CCP results for samples S001 and S003, 85.3% (116/136) and 91.9% (125/136) were reported as expected. For the negative sample S002, 16 CPPD and 12 monohydrate sodium urate (MSU) results and one “other crystal” positive result were falsely reported.

Exceptions

No exceptions.

End of report