

LABQUALITY

EQA for Pneumatic Tube Systems

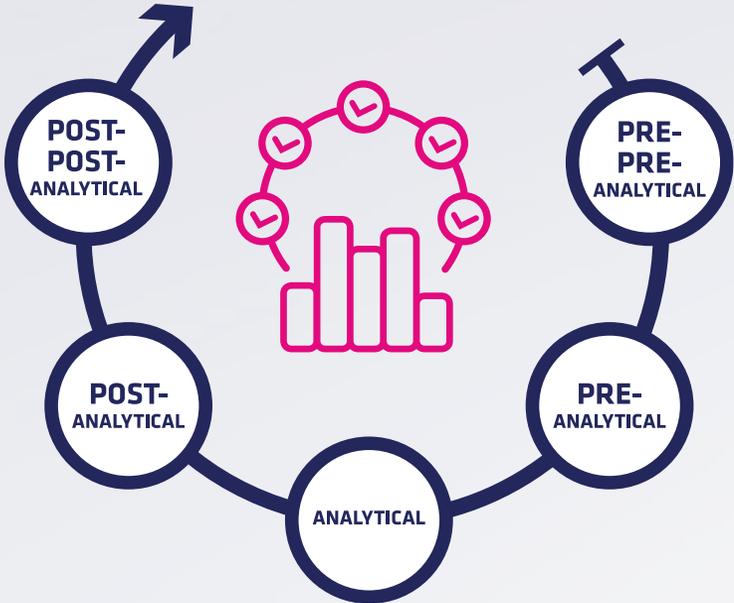
Preliminary Results of a
New Preanalytical EQA Scheme



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LABQUALITY PREANALYTICS, PNEUMATIC SAMPLE TRANSPORT PILOT STUDY

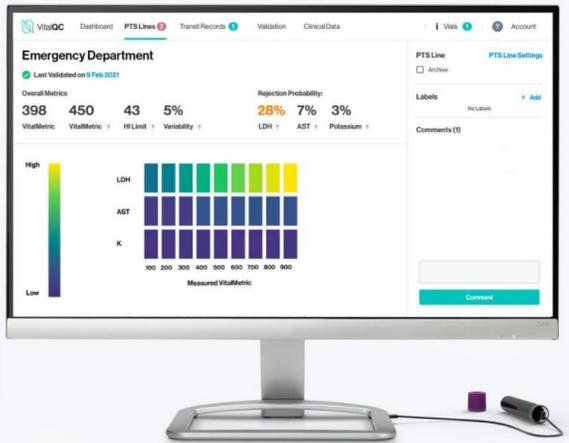
EQA



VitalVials



VitalQC

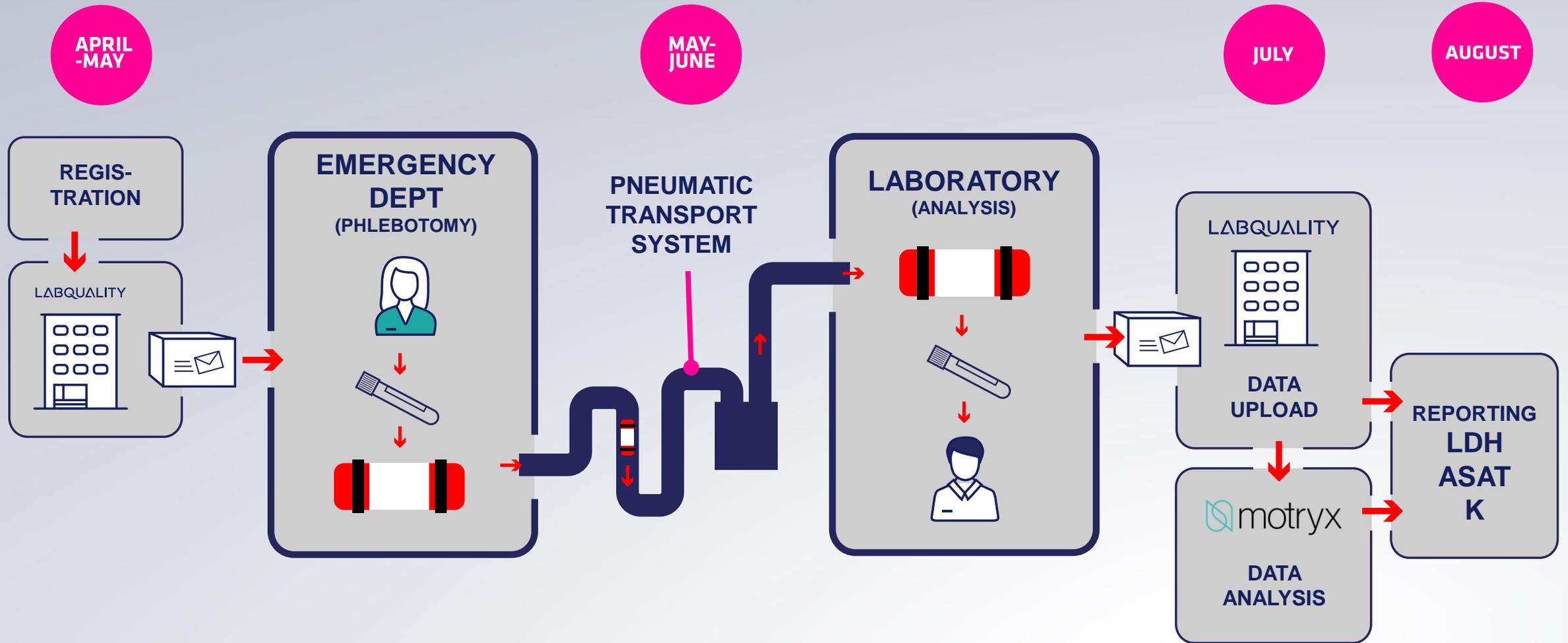


VitalMetric

Rejection probability



LABQUALITY PILOT STUDY WORK FLOW



LABQUALITY PILOT STUDY WORK FLOW

Registrations

36
Laboratories

14
Countries

Distribution

VitalVials, Step-by-Step guide

Return shipment

VitalVials, Result sheet

Step by Step guide

Step 1
Take the case containing the VitalVials to the department of choice and there remove the VitalVials from the case.

Step 2
Remove the magnetic clip from the VitalVial and check that the green light in the VitalVial starts flashing.



Step 3
Start filling in the information to the table on the result sheet. Write down the Line name, the VitalVial number and the time of removing the magnetic clip as in the example below. This information is required to assign VitalVial Data from the correct line to the EQA scheme.

Line 1: ED to LAB		
Length of Line 1 (m): 250m		
Date of measurement: Oct 14th		
VitalVial number	Time (hh:mm)	
1	VT1243	09:28
2	VT1285	09:30
3	VT1243	09:42
4	VT1285	09:44

Step 4
Pack the two VitalVials as if they were regular blood samples in PTS carriers. Pack only one VitalVial per PTS carrier. Place the magnetic clips in your pocket, not inside the PTS carriers.
The VitalVials can also be used e.g. for the Tempus system where no separate carrier/canister is used.



Step 5
Send both PTS carriers to the Laboratory and go there to retrieve the VitalVials.



Step 6
The two extra clips should be placed on the VitalVials once they arrive to the laboratory. The green light should NOT be flashing when the clips are placed on the VitalVials. Place the VitalVials in their storage case.



Step 7
Hand the two extra magnetic clips from your pocket to the PTS recipient in the laboratory and take the case with the VitalVials first back to the same department to repeat the measurement a second time. When two measurement rounds are performed, move to a new department.



Step 8
Repeat steps 2-7

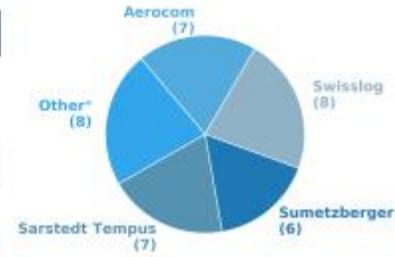
Step 9
Up to three PTS lines (Line 1-3) may be monitored in this EQA round. Both VitalVials should be sent twice in separate carriers through each line. After performing two measurements of Line 1, repeat the process for Line 2 and Line 3. Please pay attention when adding the data for each line to the Results Sheet.

Step 10
After the last measurements, please make sure that the magnetic clips are attached to the VitalVials and no light is flashing. Place the VitalVials in their case.

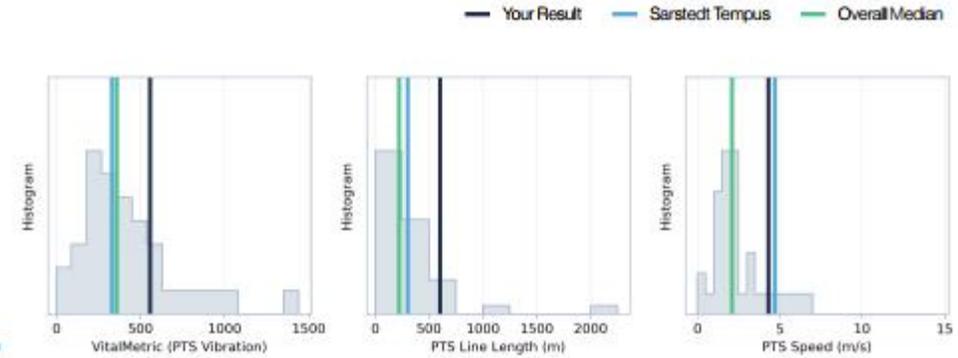
Step 11
Return the VitalVial case with magnetic clips attached to the vials, the two extra magnetic clips and the Result sheet to your local distributor/Labquality as instructed within 7 days after receiving the shipment. The package material can be reused for the return.

Pneumatic Tube System

PTS Details			
	Your Result	Sarstedt Tempus Median	Overall Median
VitalMetric	556	352	360
Length	600m	300m	220m
Speed	4.3 m/s	4.7 m/s	21 m/s

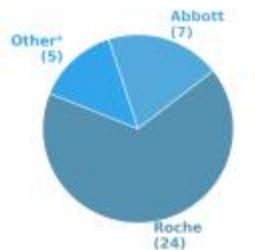


*Other: Installa, OPPENT, Tehoteknikka, Custom, Rofa GmbH Rohrpostanlagen

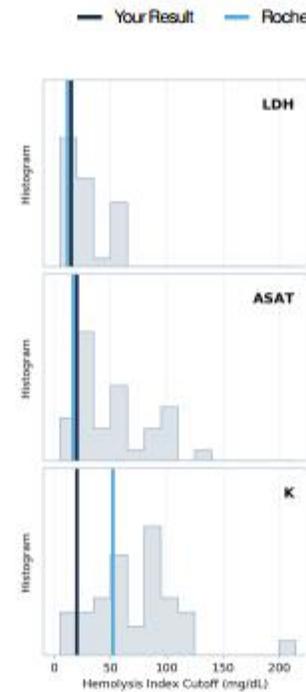


Analyzer

Analyzer Cutoffs (mg/dL)		
	Your Result	Roche Median
LDH	15	15
ASAT	20	20
K	20	52

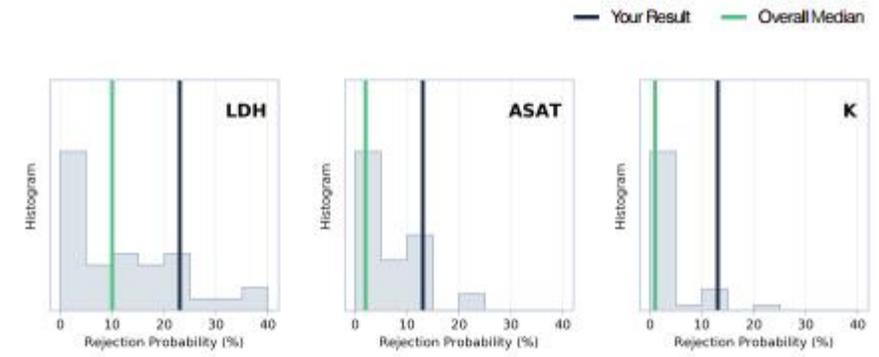


*Other: OrthoDiagnostics, Beckman, Siemens



Rejection

Rejection Probability			
	Your Result	Overall Median	Difference
LDH	23%	10%	+13%
ASAT	13%	2%	+11%
K	13%	1%	+12%



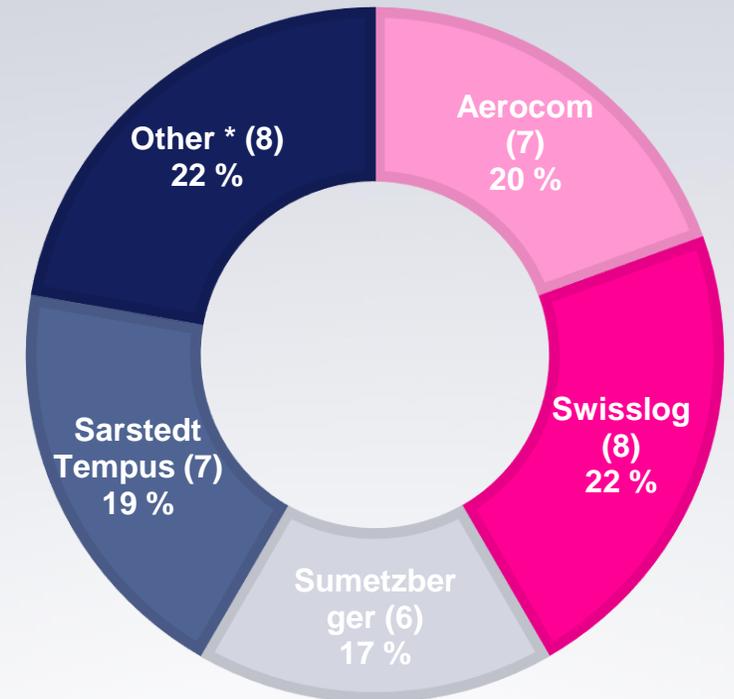
Rejection probability is a quality indicator only when following manufacturer recommendations for analyzer cutoffs.

Pneumatic tube systems

	Aerocom	Swisslog	Sumetzer	Sarsted Tempus	Other	Overall Median
Vital Metric	263 (202-724)	434 (218-695)	787 (75-1435)	352 (301-556)	189 (83-886)	360 (75-1435)
Length* (m)	220m (20-350)	342m (120-500)	404m (60-1000)	300m (126-600)	195m (40-2050)	200m (20-2050)
Speed (m/s)	2.4m/s (0.2-3.3)	1.8m/s (1.1-2.4)	1.9m/s (0.3-2.6)	4.7m/s (1.3-6.9)	2m/s (1.7-5.3)	2.1m/s (0.2-6.9)

*Approx. length provided by participants

Comparison of client PTS with the systems of other participants of the study.



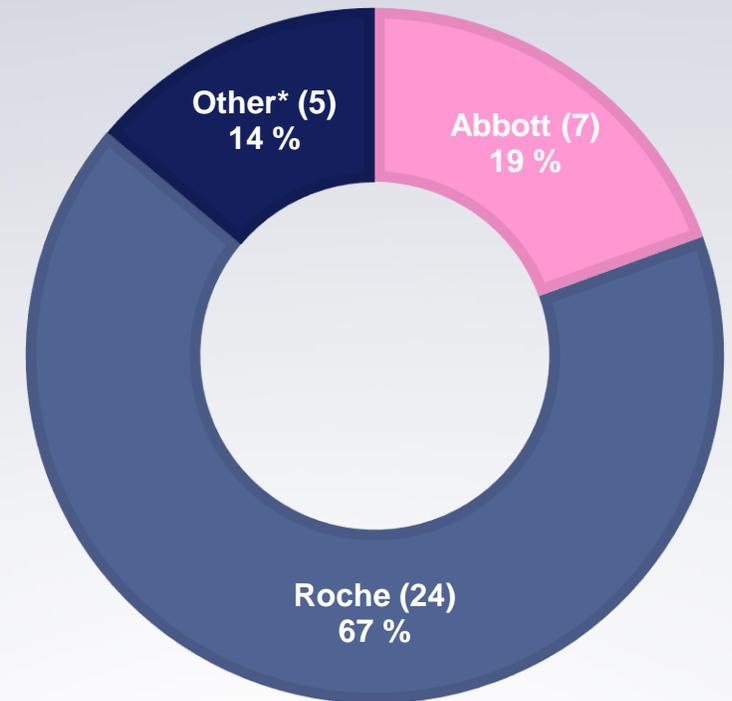
*Other: Instalıs, OPPENT, Tehotekniikka, Rofa GmbH Rohrpostanlagen, Custom

Analyzer hemolysis cutoffs (mg/dL)

	Roche Median	Abbott Median	Other Median
LDH	15 (9-50)	30 (10-33)	35 (30-50)
ASAT	20 (15-100)	92 (60-125)	65 (50-100)
K	52 (15-200)	100 (50-110)	75 (50-110)

***Hemolysis cutoffs provided by participants**

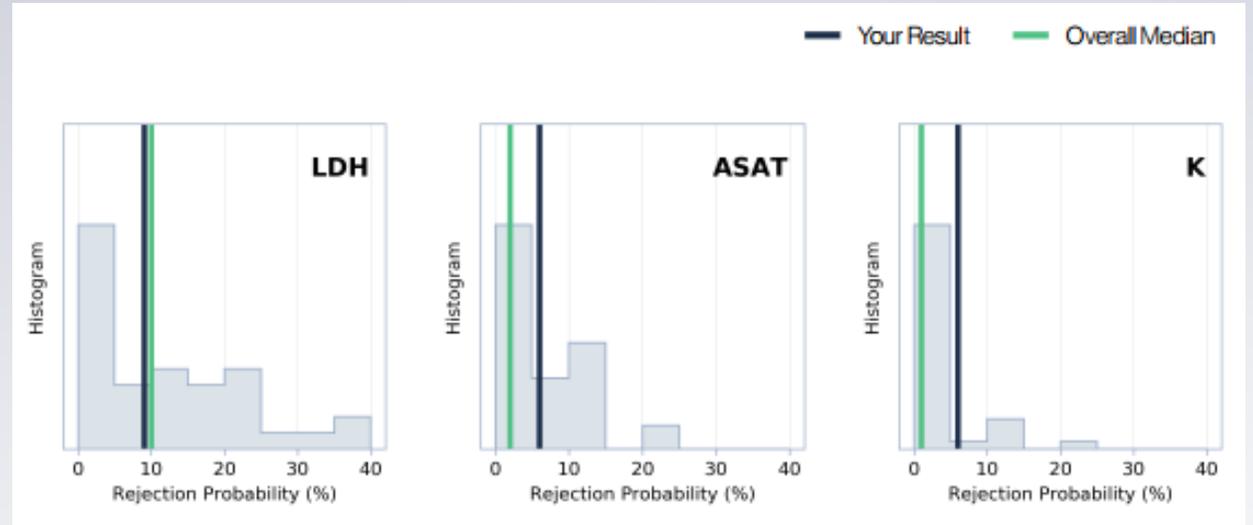
Comparison of client's analyzer cutoffs with those of other participants using an analyzer of same manufacturer.



***Other: OrthoDiagnostics, Beckman, Siemens**

Rejection probability (%)

	Roche Median (n=24)	Abbott Median (n=7)	Other Median (n=5)	Overall Median (n=36)
LDH	15%	4%	3%	10%
ASAT	9%	1%	1%	2%
K	2%	1%	1%	1%



The probability of exceeding the laboratory specific hemolysis cutoffs given the cutoffs from the Analyzer section and the vibration level from the PTS section.

21/36 responses

Part 1: Overall scores

- Information (4.4/5)
- Measurement process (4.3/5)
- Reports (4.0/5)
- Overall score for the pilot (4.1/5)

How often should this EQA scheme be run?

Once a year: 16 responses

Twice a year: 6 responses

Not needed in our laboratory: 1 response

Part 2: Background data

- HI cutoff information i.e. using manufacturer recommended HI cutoffs: 12 (57%)
- Reasons for using laboratory specific HI cutoffs instead of manufacturer recommended: mainly own studies
- PTS validation: 14 (67%)
- PTS is checked by hospital technical department on a regular basis: 12 (57%)
- Laboratory has other ways of monitoring the PTS than this EQA scheme: 6 (29%)

Distribution 2, 2021 October-December

Practical changes

- Option of monitoring 3 PTS lines/client
- Optional which PTS lines are monitored
- Improvements to the client report
- Preanalytical questions

- In 2022 electronic result sheet

Preanalytical questions

- Reasons for using laboratory specific hemolysis cutoffs instead of manufacturer recommended
- Restrictions for using PTS
- PTS validation
- Other ways of monitoring the PTS

LABQUALITY ACKNOWLEDGEMENTS

Thank you to the participating laboratories, colleagues and partners

LABQUALITY

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MOTRYX

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Sandra Loeppky, Technical Account Manager

Franziska Broell, Niva Sabeshan

The logo for LABQUALITY, featuring the word "LABQUALITY" in a bold, dark blue, sans-serif font. The letter "Q" is stylized with a white swoosh that loops around its bottom and right sides.The logo for motryx, consisting of a teal-colored icon on the left that resembles a stylized "M" or a square with a diagonal line, followed by the word "motryx" in a lowercase, black, sans-serif font.

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