2024/12/09
A02A00013GEN

Yumizen G DDi 2

REF 1300036391
BUFFER 3 x 6.5 mL
LATEX 3 x 2.5 mL

IVD CE

HORIBA ABX SAS
Parc Euromédecine
Rue du Caducée
BP 7290
34184 Montpellier Cedex 4
FRANCE

- **Yumizen G200**
- **Yumizen G400 DDi/G405**
- **Yumizen G800/G800h/G850h**
- **Yumizen G1500/G1550/G1500h/G1550h**

In vitro diagnostic reagent for quantitative determination of D-dimer level by immuno-turbidimetry.

Application Release [a] [b]

	Test name
Yumizen G1500/G1550	DDi
Yumizen G1500h/G1550h	DDi
Yumizen G800	DDi
Yumizen G800h/G850h	DDi
Yumizen G405	DDi
Yumizen G400 DDi	D-dimer
Yumizen G200	D-dimer

Intended Use [c]

For *in vitro* diagnostic use only.
Yumizen G DDi 2 is a diagnostic test used for quantitative determination of D-dimer in plasma on photometric systems.

Clinical Interest (1, 2, 3, 4) [d]

During plasma coagulation soluble fibrin is generated by the influence of thrombin on fibrinogen.
The soluble fibrin is cross-linked to the vessel walls by factor XIIIa.
When splitting this cross-linked fibrin, characteristic products called D-dimers are released.
Increased D-dimer concentrations are found in thrombotic diseases and micro thrombotic events (e.g. in case of Disseminated Intravascular Coagulation: DIC).

D-dimer determination is mainly used to rule out Deep Vein Thrombosis (DVT) of the leg and Pulmonary Embolism (PE).

Method [e]

Yumizen G DDi 2 test is based on fixed time determination of the D-dimer concentration by photometric measurement of antigen-antibody-reaction between antibodies against D-dimer bound to particles and D-dimer present in the sample.

Reagents [b]

Reagent 1

Yumizen G DDi 2 Buffer is ready-to-use.
This reagent is a zwitterion buffer.

Zwitterion buffer	< 15 g/L

Reagent 2

Yumizen G DDi 2 Latex is ready-to-use.
This reagent is a latex particle coated with monoclonal anti-human D-dimer antibody and contains stabilizer and preservative.

Monoclonal Antibody (MaB)	< 1 g/L
Bovine albumin	< 10 g/L
Sodium azide	< 1.2 g/L

[a] Modification: new instrument added.
[b] Modification: chapter added.
[c] Modification: new leaflet form.
[d] Modification: § "Clinical Interest" changed.
[e] Modification: § "Method" changed.

Yumizen G DDi 2

Yumizen G DDi 2 should be used according to this notice.
The manufacturer cannot guarantee its performance if used otherwise.

Handling [f]

1. Wait until the reagents reach the working temperature.
2. Mix thoroughly the vial (Yumizen G DDi 2 Latex) horizontally (5 to 10 times).
3. **For automated analyzers only:** place the vials in the reagent holder without cap.

For optimal performance remove the reagent from the instrument after use, close the vial and store at 2 - 8°C.
An analysis of the control must be carried out on a daily basis at the same time as the patient samples.
The frequency of the controls depends on the laboratory requirements.
Each laboratory must establish the quality assurance procedures to be followed. These must conform to the current accreditation requirements and pertinent regulations.

Care should be taken not to interchange the caps with others products.

Calibrator [b]

Use the master curve provided.

Control [b]

For internal quality control, use:

- **Yumizen G CTRL DDi I & II** (1300036414) (not included)
  5 x 1 mL + 5 x 1 mL

The frequency of controls and the confidence intervals should correspond to laboratory guidelines and country-specific directives. You should follow federal, state and local guidelines for testing quality control materials. The results must be within the range of the defined confidence limits. Each laboratory should establish a procedure to follow if the results exceed these confidence limits.

Each control should be assayed daily.

Semi-Automated Analyzers Procedure [g]

Yumizen G DDi 2 can be used on semi-automated analyzers (Yumizen G Line), according to the following procedure.
Duplicated measurement is recommended.

Yumizen G400 DDi / Yumizen G200

1	Warm the reagent up to 20-25°C.	15 min
2	Add the sample into the cuvette.	10 µL
3	Add the **Yumizen G DDi 2 Buffer**.	130 µL
4	Incubate at 37°C.	2 min
5	Add the **Yumizen G DDi 2 Latex**.	30 µL
6	Mix it.	5 times
7	Read a first time at 570 nm.	20 s
8	Read a second time at 570 nm.	180 s

Yumizen G405

1	Warm the reagent up to 20-25°C.	15 min
2	Add the sample into the cuvette.	20 µL
3	Add the **Yumizen G DDi 2 Buffer**.	115 µL
4	Incubate at 37°C.	2 min
5	Add the **Yumizen G DDi 2 Latex**.	45 µL
6	Mix it.	5 times
7	Read a first time at 570 nm.	20 s
8	Read a second time at 570 nm.	150 s

If the value is higher than the measuring range, dilute the sample with Yumizen G IMIDAZOL (1300036385).
In case of determination by any other hemostasis analyzers, please follow the instructions of the manual.

Materials Required but not Provided [h]

- Hemostasis analyzer
- HORIBA analyzers (Yumizen G Line) are recommended.
- Control: **Yumizen G CTRL DDi I & II** (1300036414)
- Buffer solution: **Yumizen G IMIDAZOL** (1300036385)
- Standard laboratory equipment

[f]Modification: § "Handling" changed.
[b]Modification: chapter added.
[g]Modification: § "Semi-Automated Analyzers Procedure" changed.
[h]Modification: § "Material Required but not Provided" changed.

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Specimen [i]

Plasma

- 3.2% (109 mmol/L) sodium-citrate anticoagulated plasma in primary tube.
- 3.2% (109 mmol/L) sodium-citrate, theophylline, adenosine and dipyramidole (CTAD) anticoagulated plasma in primary tube.

Mix the blood carefully.

Specimen centrifugation

Speed	Time	Temperature
1500 g	15 min	room temperature

Specimen Stability (5, 6)

- At 20 - 25°C: 24 hours
- At 2 - 8°C: 24 hours
- Between -22°C to -26°C: 24 months (only the plasma)
- Between -72°C to -76°C: 24 months (only the plasma)

To thaw plasma:

1. Place the sample in a water bath: approximately 5 min at 37°C.
2. Centrifuge the sample.

For additional information, please refer to documents CLSI H21-A5 and CLSI H59-A.

Reference Range [b]

Each laboratory should establish its own reference ranges.
Cut-off value: 0.5 µg FEU/mL
Every laboratory should check if the cut-off value is transferable to its own patient population and instruments.
They should determine their own cut-off value if necessary.

Storage and Stability [j]

Stability before opening

Stable up to the expiry date on the label if stored at 2 - 8°C.

Stability after opening

	2 - 8°C
Yumizen G DDi 2 Buffer	14 days
Yumizen G DDi 2 Latex	14 days

Stability on board

Automated Analyzers

	15 - 19°C
Yumizen G DDi 2 Buffer	14 days
Yumizen G DDi 2 Latex	14 days

Waste Management [b]

- Please refer to local legal requirements.
- This product contains less than 0.12% of sodium azide as a preservative. Sodium azide may react with lead and copper to form explosive metal azides.

General Precautions [k]

- This product is for professional *in vitro* diagnostic use only.
  For laboratory use.
- For prescription use only.
- This reagent is classified as non-hazardous in compliance with regulation (EC) N°.1272/2008.
- **Yumizen G DDi 2 Latex**
  Warning: This product is obtained from substances of animal origin. Consequently, it should be treated as potentially infectious and handled with the appropriate cautions in accordance with good laboratory practices (7).
- Do not pipette by mouth.
- Do not replenish the products.
- Do not swallow. Avoid contact with skin and mucous membranes.
- Observe the standard laboratory precautions for use.
- The product vials should be discarded after use. Disposal of all waste material should be in accordance with local guidelines.
- Please refer to the SDS associated with the product.
- Do not use the product if there is visible evidence of biological, chemical or physical deterioration.
- Do not use the product if the recommended storage conditions, including temperature, are not followed.

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[i]Modification: § "Specimen" changed.
[b]Modification: chapter added.
[j]Modification: § "Storage and Stability" changed.
[k]Modification: § "General Precautions" changed.

Yumizen G DDi 2

- User must be trained by a HORIBA representative before attempting to operate the device.
- It is the user's responsibility to verify that this document is applicable to the product used.
- For technical assistance, you can call +33 (0)4 67 14 15 16.
- Any serious incident that has occurred in relation to the device shall be reported to the manufacturer and the competent authority of the country in which the user and/or the patient is established.
- Using of third-party hemostasis analyzers may cause a risk of system un-harmonization.
- It is the user's responsibility to evaluate the risk of using a third-party hemostasis analyzers.

Performance

The performance data listed below are representative of performance on HORIBA systems.

Lot to Lot Variability [b]

The comparison of plasma samples tested consecutive lots of reagent shows that the lot to lot variability is within specification.

Sample Volume [b]

Instrument	Volume
Yumizen G1500/G1550	20 µL
Yumizen G1500h/G1550h	20 µL
Yumizen G800	20 µL
Yumizen G800h/G850h	20 µL
Yumizen G405	20 µL
Yumizen G400 DDi	10 µL
Yumizen G200	10 µL

Limit of Detection [b]

The limit of detection according to the recommendations found in the CLSI (NCCLS) EP17-A2 (8) is 0.22 µg FEU/mL.

Precision

Repeatability (on automated analyzers) [l]

Repeatability according to the recommendations found in the CLSI (NCCLS), EP15-A3 (9), EP05-A3 (10), H59-A (6) (data obtained on internal study).

- 2 controls (20 runs)
- 2 specimens (20 runs)

	Mean value µg FEU/mL	CV %
Control specimen 1	0.446	2.713
Control specimen 2	1.852	2.469
Specimen 1	0.680	3.896
Specimen 2	1.935	2.327

Maximum acceptance criteria (CV %): < 10%

Reproducibility (on automated analyzers) [m]

Reproducibility according to the recommendations found in the CLSI (NCCLS), EP05-A3 (10), H59-A (6) (data obtained on internal study).

- 2 controls (25 runs)

	Mean value µg FEU/mL	CV %
Control specimen 1	0.487	7.487
Control specimen 2	1.921	2.437

Maximum acceptance criteria (CV %): < 15%

Technical Measuring Range [b]

The technical measuring range for the Yumizen G Line instruments is 0.22 - 5.00 µg FEU/mL.

Linearity [b]

The linearity range without extra dilution on HORIBA analyzers (Yumizen G Line) is 0.22 - 5.00 µg FEU/mL.
In case of higher value (5.00 µg FEU/mL) it is recommended to retest the sample with the dilution 1:6.

High Dose Hook Effect [b]

No high dose Hook effect was observed up to the concentration of 25 µg FEU/mL.

Interferences (11) [b]

Haemoglobin: No significant influence is observed up to 9.6 g/L.
Triglycerides: No significant influence is observed up to an Intralipid® concentration (representative of lipemia) of 6 mmol/L.

[b]Modification: chapter added.
[l]Modification: modification of repeatability.
[m]Modification: modification of reproducibility.

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Bilirubin:	No significant influence is observed up to 810 µmol/L.
Rheumatoid factor:	No significant influence is observed up to 90 IU/mL.

Clinical Performance [b]

The diagnostic utility of Yumizen G DDi 2 is validated by independent institutes to meet specific performance characteristic values required by CLSI in a multi-center study, as Negative Predictive Value (NPV) and sensitivity, based on a comparison with another device from the market.

	NPV	Sensitivity	Sample number
Yumizen G1500/G1550	95%	96%	135
Yumizen G800	96%	97%	135
Yumizen G400 DDi	96%	97%	135

Precautions of Characteristics

The measurement data was generated during a performance evaluation and is not recommended as an acceptance criterion.

Reference

1. Wells PS, Anderson DR, Rodger M, Forgie M, Kearon C, Dreyer J, Kovacs G, Mitchell M, Lewandowski B, Kovacs MJ. Evaluation of D-dimer in the diagnosis of suspected deep-vein thrombosis. N Engl J Med (2003) **349** (13): 1227-1235.
2. Dempfle CE. Use of D-dimer assays in the diagnosis of venous thrombosis. Semin Thromb Hemost (2000) **26** (6): 631-641.
3. Pinczés I. A D-dimer-szint meghatározásának jelentősége. LAM (2009) **19** (12): 761-767.
4. Dempfle CE. Validation, calibration and specificity of quantitative D-dimer assays. Semin Vasc Med (2005) **5**: 315-320.
5. Collection, Transport, and Processing of Blood Specimens for Testing Plasma-Based Coagulation Assays and Molecular Hemostasis Assays. Approved Guideline, 5th ed., CLSI (NCCLS) document H21-A5 (2008).
6. Quantitative D-dimer for the Exclusion of Venous Thromboembolic Disease. Approved Guideline, 1st ed., CLSI (NCCLS) document H59-A (2011).
7. Council Directive (2000/54/EC). Official Journal of the European Communities. No. L262 from October 17, 2000: 21-45.
8. Evaluation of Detection Capability for Clinical Laboratory Measurement Procedures. Approved Guideline, 2nd ed., CLSI (NCCLS) document EP17-A2 (2012).
9. User Verification of Precision and Estimation of Bias. Approved Guideline, 3rd ed., CLSI (NCCLS) document EP15-A3 (2014).
10. Evaluation of Precision of Quantitative Measurement Procedures. Approved Guideline, 3rd ed., CLSI (NCCLS) document EP05-A3 (2014).
11. Interference Testing in Clinical Chemistry. Approved Guideline, 2nd ed., CLSI (NCCLS) document EP07-A2 (2005).

[b]Modification: chapter added.