This package insert follows the Pharmaceuticals, Medical devices and Other Therapeutic Products Act of Japan.

In Vitro Diagnostics
Certification No. 224ADAMX00034000

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This package insert must be read carefully prior to use.

Teicoplanin assay kit
(Classification No.: 30415000)

Nanopia TDM Teicoplanin

General Precautions

1. This product is for in vitro diagnostic use, and must not be used for any other purposes.
2. Clinicians should make a comprehensive clinical decision based on assay results in conjunction with clinical symptoms and other examination results.
3. Please read carefully the "PRECAUTIONS" section, particularly under "Effects on Laboratory Tests" of the package insert of each drug, for information on the influence to the assay result that medications administered to the patient have. Please also read carefully the "2) Cross-reactivity," under "2. Interfering Substances," in the "Procedural Precautions" section, as well as "2. Precautions for Assessment" in the "Assessment of Assay Results" section, of this package insert.
4. This product should be used only as directed in this package insert. Reliability of results cannot be guaranteed if there are any deviations from the instructions in this package insert.
5. If the reagent accidentally comes in contact with eyes and/or mouth, rinse immediately with ample water as first aid, and consult the doctor if required.
6. Carefully read the operating instructions for each type of automated analyzers prior to using this product. Parameters for each type of analyzers are available, and can be requested from SEKISUI MEDICAL CO., LTD. if required.
7. Perform a quality control test prior to assay to ensure accuracy.
8. TEIC Antibody Solution 1 contains human-derived components that have been confirmed to be negative for HBs antigens, HIV antibodies, and HCV antibodies. However, handle this reagent with great care in the same manner as the samples, because it is potentially infectious.

Description (Kit Components)

Component: Ingredients
TEIC Antibody Solution 1: Anti-teicoplanin sheep polyclonal antibody
TEIC Latex Reagent 2: Teicoplanin-coated latex

Intended Use

Measurement of teicoplanin in serum or plasma

Teicoplanin is a glycopeptide antibiotic produced by *Actinoplanes teichomyceticus*. It shows antimicrobial activity against aerobic and anaerobic gram-positive bacteria, including methicillin-resistant Staphylococcus aureus (MRSA).
Clinically significant adverse reactions to teicoplanin include shock, anaphylactic reaction, eighth nerve disorder, toxic epidermal necrolysis, agranulocytosis, leukopenia, thrombopenia, acute renal failure, hepatic function disorder, and jaundice. To avoid these adverse reactions, monitoring the blood concentration of teicoplanin after administration is recommended.[1)] Monitoring is also important to promote the appropriate use of antimicrobial agents based on PK/PD.[2)]

Assay Principle

1. Assay Principle

When a certain amount of anti-teicoplanin antibody is added and reacted with a sample, consumption of the antibody depends on its content in the sample. When teicoplanin-coated latex is added, residual anti-teicoplanin antibody reacts with the latex and forms aggregates. Since the extent of aggregation depends on the teicoplanin concentration in the sample, the teicoplanin concentration can be determined by measuring aggregation as the absorbance.

Sample (teicoplanin) + Anti-teicoplanin antibody
⟶ Antigen-antibody reaction

Unreacted anti-teicoplanin antibody + Teicoplanin-coated latex
⟶ Aggregation by antigen-antibody reaction

2. Features

1) Liquid reagents, ready-to-use.
2) It can be measured using the automated analyzers commonly used.

Procedural Precautions **

1. Properties of Samples and Sampling Methods

1) Samples
Serum and plasma (heparin plasma and EDTA plasma) may be used.
2) Storage of samples
(1) After separation of serum (plasma), samples may be stored for up to 7 days in a refrigerator. If samples cannot be measured within 7 days of serum (plasma) separation, store them at -20°C or lower and measure them within 28 days. Stored samples should be brought to room temperature (15–30°C) before use.
(2) Samples may be frozen and thawed up to twice.
3) Caution must be exercised, because a separating agent, etc. in the blood collection tube may affect assay values.[3)]
4) Sampling should be performed after removing insoluble matter from the sample. Highly turbid specimens should be centrifuged before assay.

2. Interfering substances

1) Assay results are not affected by free bilirubin (up to 18.7 mg/dL), conjugated bilirubin (up to

19.7 mg/dL), hemoglobin (up to 498 mg/dL), formazin turbidity (up to 1440 FTU), or rheumatoid factors (up to 450 IU/mL).

2) Cross-reactivity

The following table summarizes the cross-reactivity between teicoplanin and other drugs.

Substance	Concentration tested (μg/mL)	Cross-reactivity (%)
Acetylsalicylic acid	686	ND
Acetaminophen	201	ND
Amikacin	150	ND
Amphotericin B	105	ND
Ampicillin	57	ND
Arbekacin	66	ND
Bendroflumethiazide	498	ND
Caffeine	101	ND
Carbenicillin	252	ND
Cefamandole nafate	253	–0.31
Cefazolin	508	ND
Cephalexin	108	0.65
Cephalosporin C	1022	–0.14
Cephalothin	154	ND
Chloramphenicol	251	ND
Chlorothiazide	38	ND
Clindamycin	58	ND
EDTA-2K	5414	ND
Erythromycin	200	ND
Ethacrynic acid	438	–0.13
Ethambutol	24	ND
5-Fluorocytosine	391	ND
Furosemide	107	–0.57
Fusidic acid	922	ND
Gentamicin	22	ND
Hydrochlorothiazide	42	–1.92
Ibuprofen	448	0.15
Isoniazid	73	ND
Kanamycin A	63	ND
Kanamycin B	61	ND
Lincomycin	2138	ND
Methotrexate	910	–0.09
6α-Methylprednisolone	202	ND
Nalidixic acid	515	ND
Naproxen	1007	ND
Neomycin	1154	ND
Niacin	831	0.05
Nitrofurantoin	119	ND
Oxytetracycline	2101	–0.03
Penicillin G	138	ND
Penicillin V	104	ND
Phenacetin	201	–0.31
Phenytoin	106	ND
Prednisolone	13	4.51
Prednisone	12	6.58
Rifampicin	55	–14.24
Salicylic acid	505	–0.29
Sisomicin	101	ND
Sodium fluoride	22	ND
Spectinomycin	108	ND
Sulfadiazine	228	ND
Sulfamethoxazole	405	–0.19
Sulfisoxazole	298	0.28
Tetracycline	17	3.40
Tobramycin	26	ND
Trimethoprim	21	ND
Trisodium citrate	506	ND
Vancomycin	636	0.22

ND: Not Detectable

3. Others

1) Always use Teicoplanin Calibrator for Nanopia for calibration.

2) Precautions for assay range

If the concentration of sample exceeds assay range, dilute the sample with saline and repeat the measurement.

Dosage/Administration (Assay Procedure) *

1. Preparation of reagents

Reagent (1): TEIC Antibody Solution 1 is ready to use.

Reagent (2): TEIC Latex Reagent 2 is ready to use.

Before using this product, gently invert the TEIC Latex Reagent 2 bottle to mix it thoroughly, and check that there are no bubbles.

2. Assay Procedure

This product is compatible with various types of automated analyzer. An example of the assay procedure is indicated below.

Sample 2.4 μL + Reagent (1) 180 μL → 37°C Approx. 5 min → Reagent (2) 60 μL → 37°C Approx. 1 min → Measurement (Absorbance I※)

→ 37°C Approx. 2 min → Measurement (Absorbance II※)

→ Calculation of concentration

※Absorbance I and II: Absorbance at 700 nm

Calibration material: Teicoplanin Calibrator for Nanopia (manufacture's assigned value)

Assessment of Assay Results *

1. Reference standard range

It is recommended to set the target trough level for the therapeutic range of teicoplanin as 15–30 μg/mL, or as ≥ 20 μg/mL to obtain a better response in patients with serious diseases or complex infections (such as endocarditis and osteoarticular infections).[4] Since the therapeutic concentrations and toxic concentrations may overlap, interpretation of assay results should also be based on the patient's clinical findings and other examination results.

It is recommended that the blood concentration of teicoplanin should be measured in a sufficient number of samples for statistical analysis and that its clinical effective concentration should be determined by each medical institution.

2. Precautions for Assessment

There may be reactions or interfering reactions

with non-target substances. If assay results appear to be unreliable, repeat the measurement (if necessary, after dilution) or try another analytical methods.

Performance

1. Sensitivity

1) Absorbance of standard solution (0.0 μg/mL) is ≥ 2300 (Abs. × 10000).
2) The difference of absorbance between standard solution (0.0 μg/mL) and another standard solution (5.0 μg/mL) is ≥ 550 (Abs. × 10000).

2. Accuracy: 80–120 % of the expected assay value

3. Within-run Reproducibility:
Coefficient of variation ≤ 15 %
(Test methods used for 1.–3. are in-house methods.)

4. Measurement Range[5] (On Hitachi 7180 automated analyzer)
3.0–100 μg /mL

5. Correlation[5]
Serum N=61 r=0.978 y=0.94x + 0.75
Control method: Approved in vitro diagnostic (fluorescence polarization immuno assay)

6. Standard Material
Teicoplanin(in-house standard material)

Precautions for Use or Handling *

1. Precautions for Handling (to Ensure Safety)

1) All samples used in the test should be handled as a material possibly infected with HIV, HBV, HCV, or other viruses. To prevent infection, use disposable gloves and avoid mouth pipetting during the test.
2) Sodium azide is added as an antiseptic agent in this product. Therefore, if the reagent comes in accidentally contact with eyes, mouth or skin, rinse immediately with ample water as first aid, and consult the doctor if required.

2. Precautions for use

1) This product should be stored as directed, without freezing. Freezing can deteriorate the reagents, which can produce inaccurate results. Therefore, avoid using the reagents which have been previously frozen.
2) Do not use expired reagents. Use of such reagents cannot guarantee the reliability of measurement values.
3) Do not replenish the reagents.
4) After completion of measurement, this product should be tightly stoppered and stored in a refrigerator.
5) Do not mix materials from different kit lot numbers.
6) Do not perform the assay under direct sunlight

3. Precautions for Disposal

1) Before disposal, used samples and their containers must be immersed in sodium hypochlorite solution at a concentration of greater than 0.1% for longer than 1 hour or autoclaved at 121ºC for 20 minutes.
2) To prevent infections from spilled samples or solutions containing samples, wipe the spilled area thoroughly with disinfectants such as sodium hypochlorite solution at a concentration of greater than 0.1%.
3) The reagents and treated samples should be discarded as medical waste or industrial waste according to the waste disposal regulations.
4) The reagents should be disposed of in accordance with the Water Pollution Control act or related regulations.
5) Sodium azide has been added as an antiseptic agent in this product. It can react with lead or copper pipes to produce the highly explosive metal azide. Therefore, the reagent should be flushed with large amounts of water during disposal.

4. Other precautions
Do not use the containers for other purposes.

Storage and Shelf Life *

1. Storage temperature: 2–8°C
2. Shelf life: 1 year from the date of manufacture (The expiration date is printed on the outer package.)

Packaging

Name		Package
Nanopia TDM Teicoplanin	TEIC Antibody Solution 1	1 × 24 mL
	TEIC Latex Reagent 2	1 × 8 mL

Constituent reagents are available in other configurations. For further details please contact SEKISUI MEDICAL CO., LTD.

References *

1) Package insert of Targocid 200mg. Japanese.
2) Kizu J. et al.: Jpn J Chemother, 58(4), 464, 2010. Japanese.
3) Dasgupta A., Dean R., et al.: Am J Clin Pathol, 101(4), 1994.
4) Japanese Society of Chemotherapy, Japanese Society of Therapeutic Drug Monitoring: A revised edition of guidelines for therapeutic drug monitoring of antimicrobials, 2016. Japanese.
5) SEKISUI MEDICAL CO., LTD. In house data. Japanese.

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