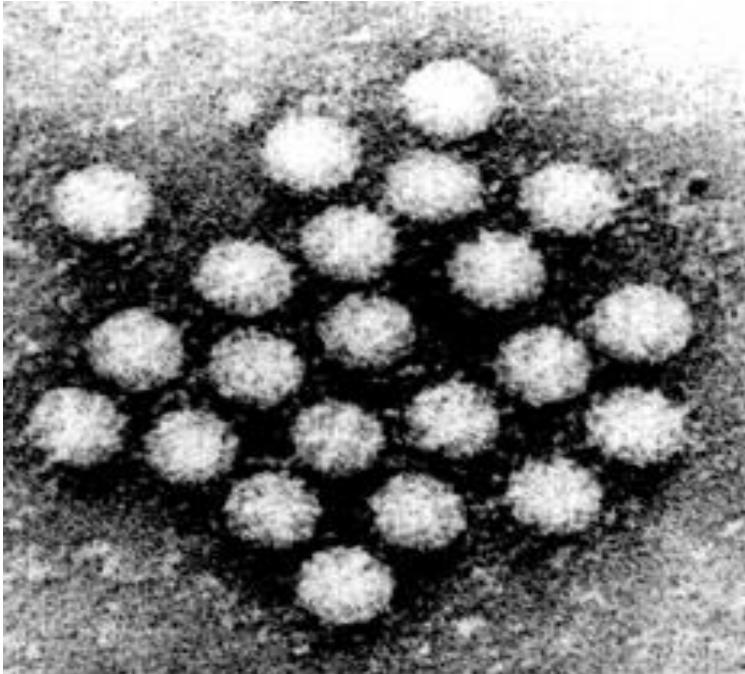


Immunochromatographic test for rapid and simultaneous detection of norovirus and rotavirus in fecal specimens

INDEX

- I. Background of NoV and RoV
- II. Introduction of **IP Line Duo “Noro/Rota”** kit
 - 1. Principle of the test
 - 2. How to use the kit
- III. Results of comparative studies

NOROVIRUS



INFECTION

7 genogroups

Multiple genotypes: 9 GI, 22 GII

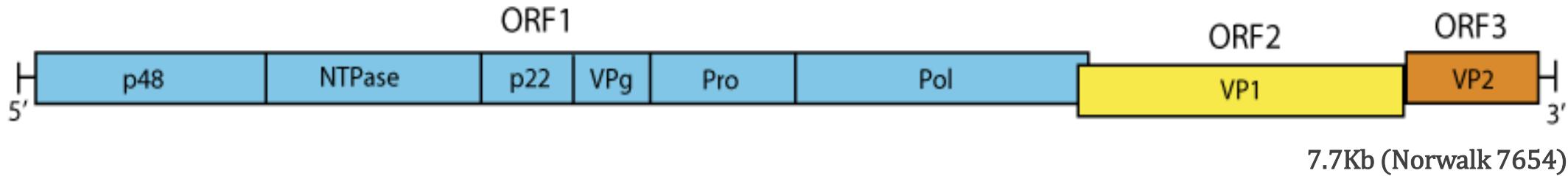
Infectious dose of <10-100 particles

Extremely stable

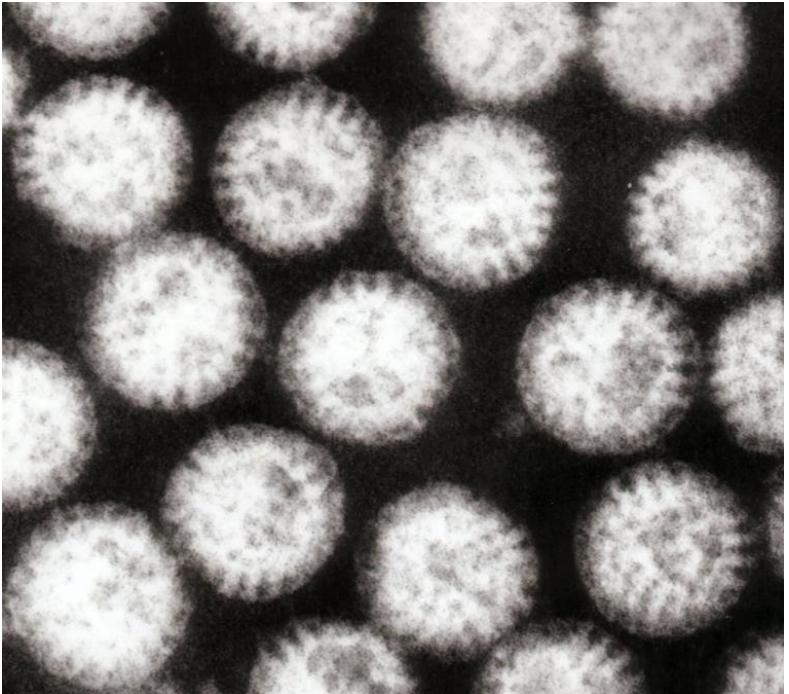
Viral shedding of 3 weeks or more

Limited (few months) immunity

No culture system for human NoV



ROTAVIRUS



INFECTION

8 groups (A, B, C, D, E, F, G, H)

Group A >80% human infection cases

Multiple serotypes: 23 G, 31 P

Infectious dose **of <10-100** particles

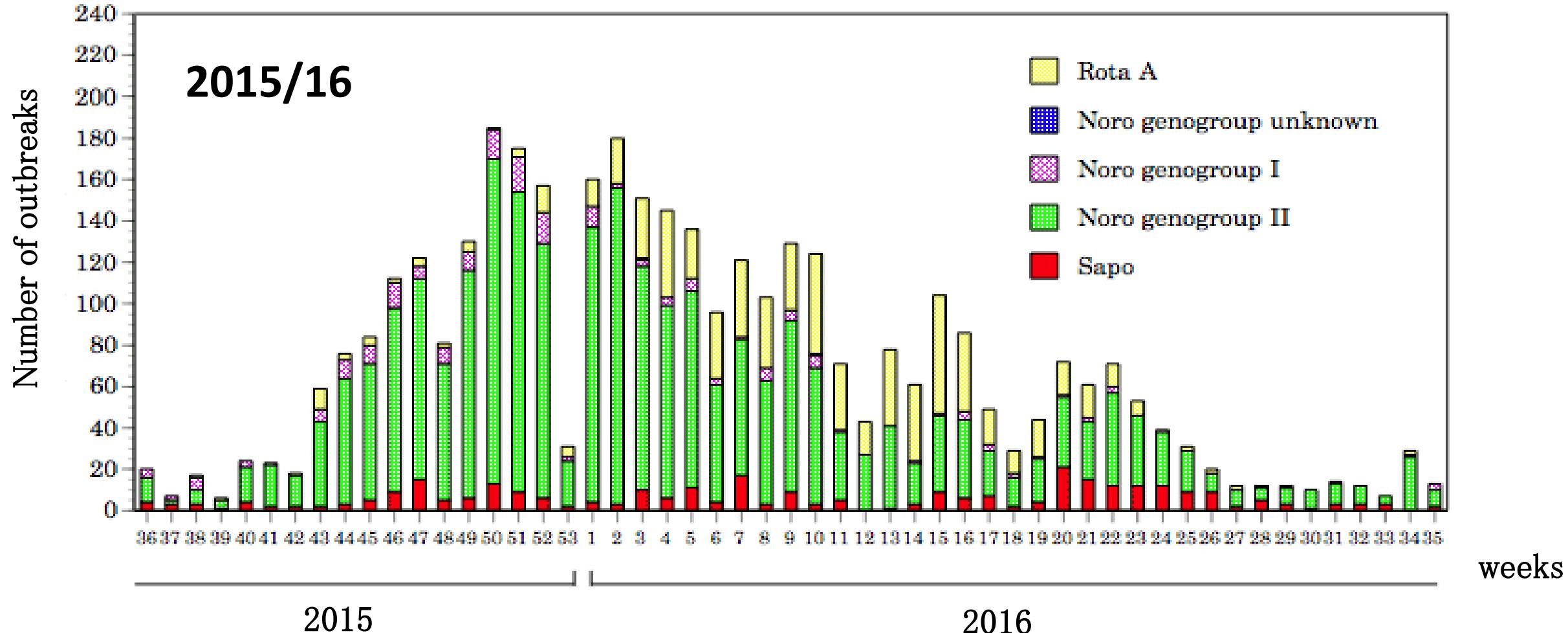
Incubation period: 2 days

Vaccine: available, 2 types

Limited (**3 years**) immunity

Culture system for human rotavirus

SURVEILLANCE OF NORO AND ROTA IN JAPAN



*各都道府県市的地方衛生研究所からの検出報告を図に示した

IP Line Duo “Noro/Rota” Kit

For rapid and simultaneous detection of Norovirus and Rotavirus



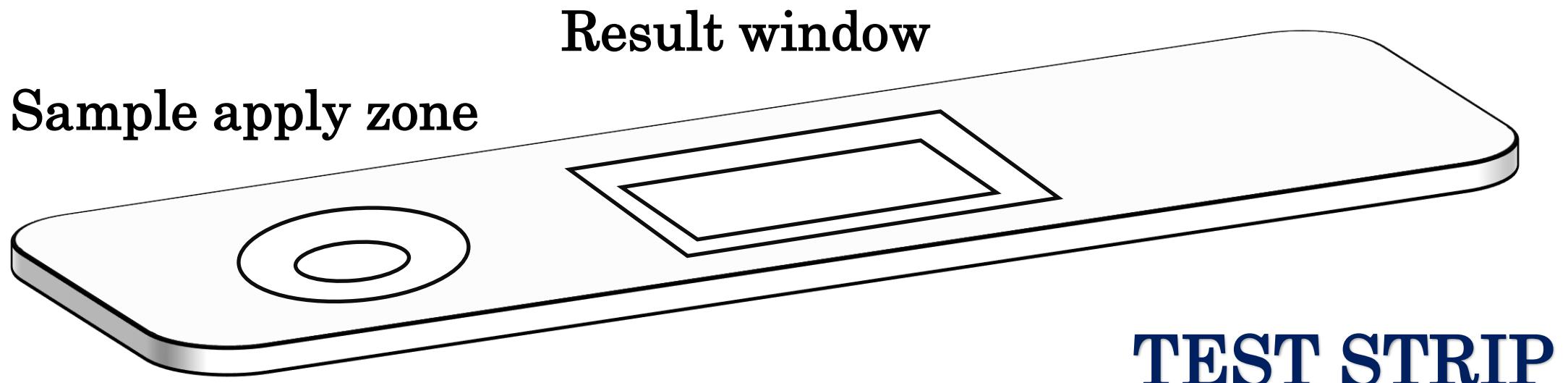
Kit Composition :
Test Device
Extraction Buffer

<Annexed Materials>
Filters
Sample collector
Workbox card

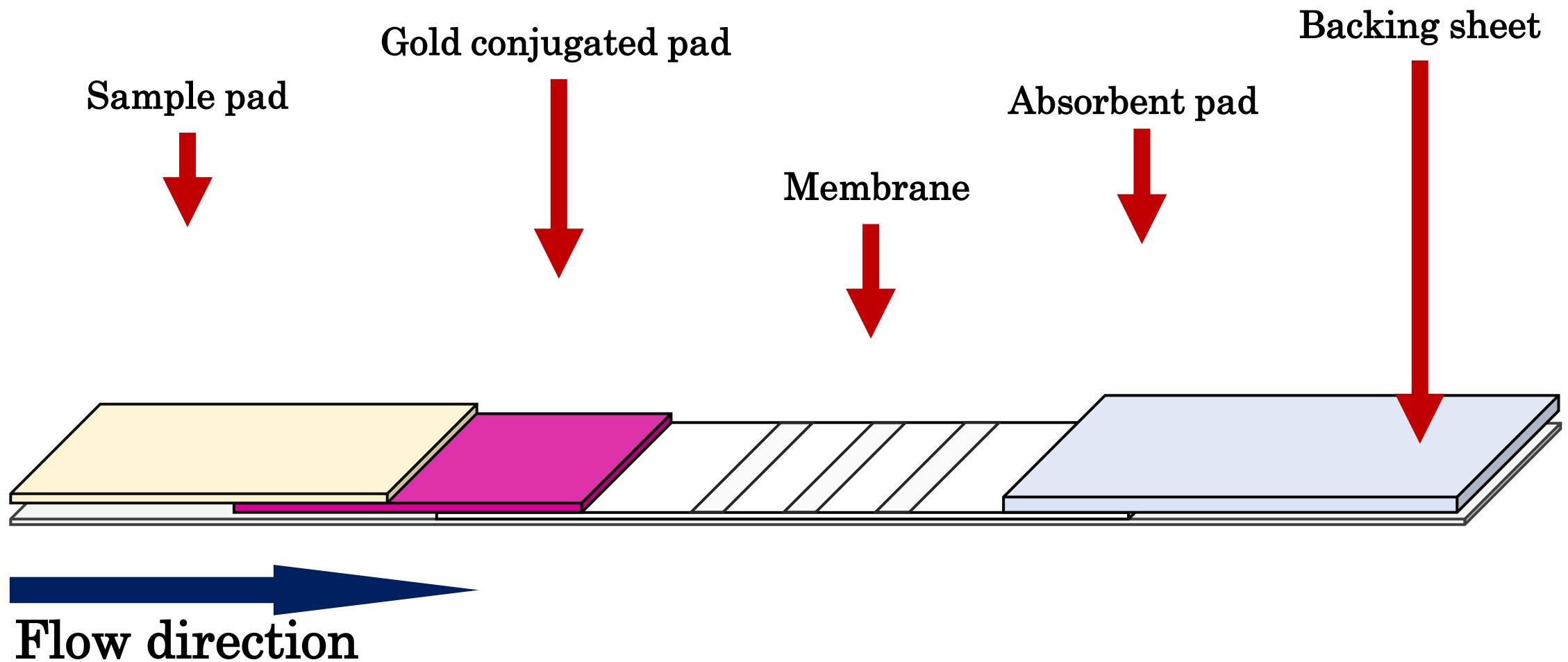
IMMUNOCHROMATOGRAPHIC TEST

- Lateral flow type -

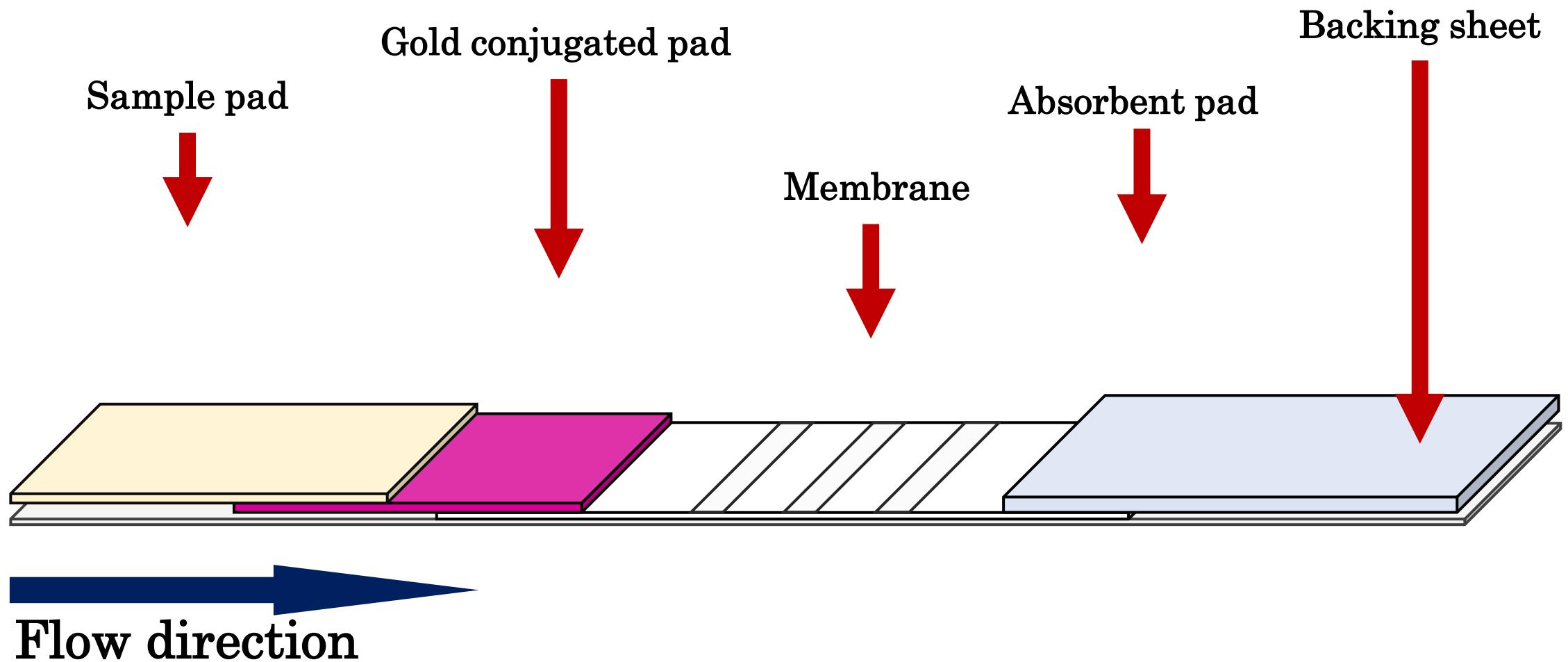
TEST DEVICE



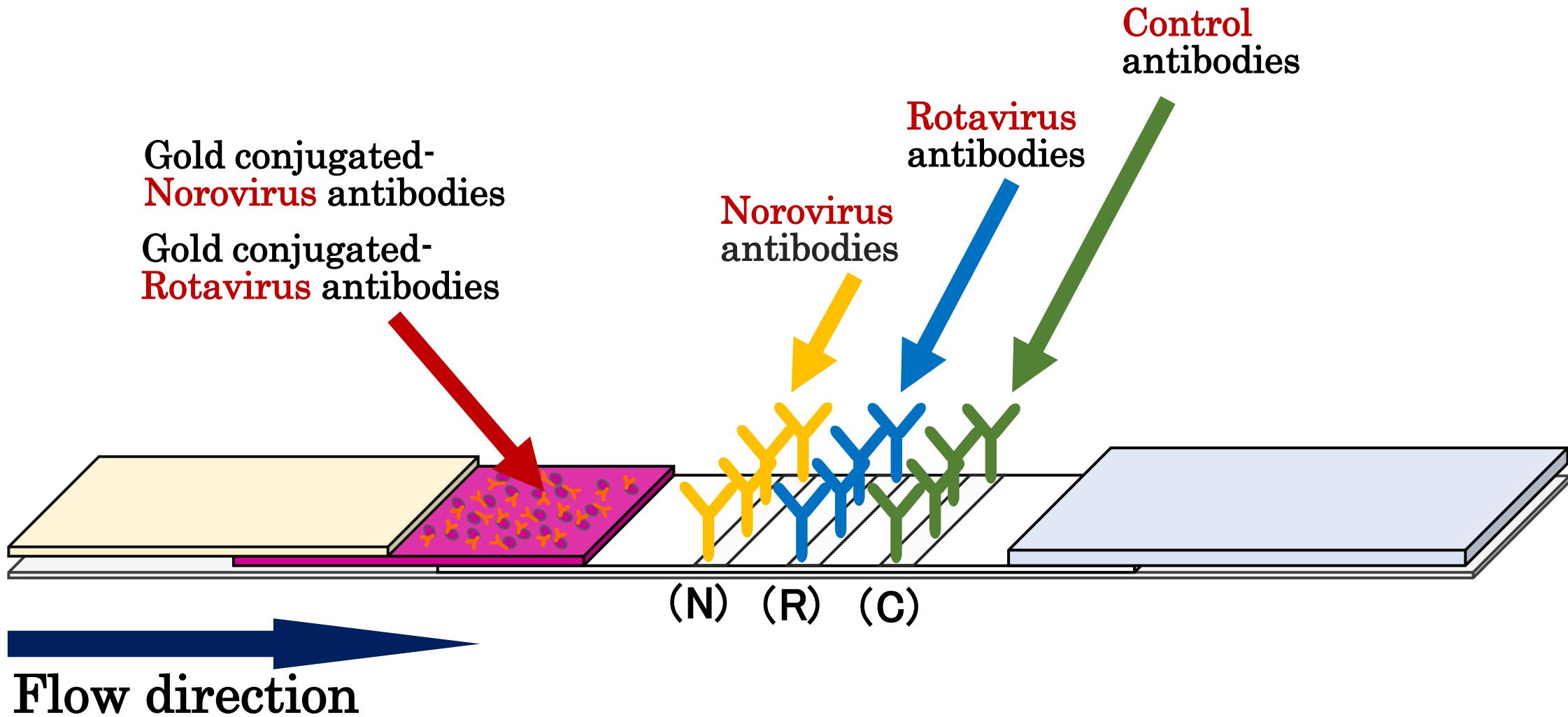
COMPOSITION OF THE TEST STRIP



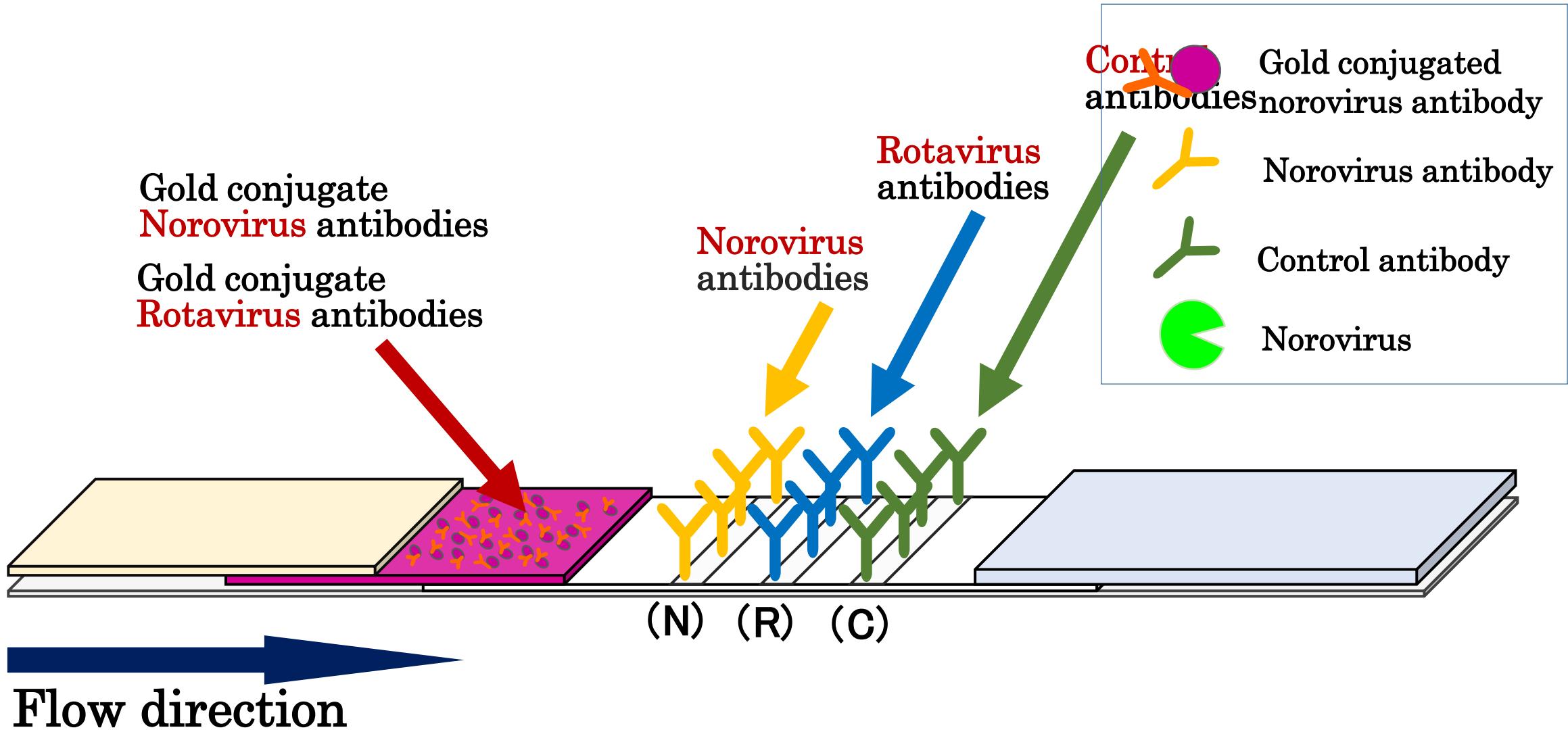
COMPOSITION OF THE TEST STRIP



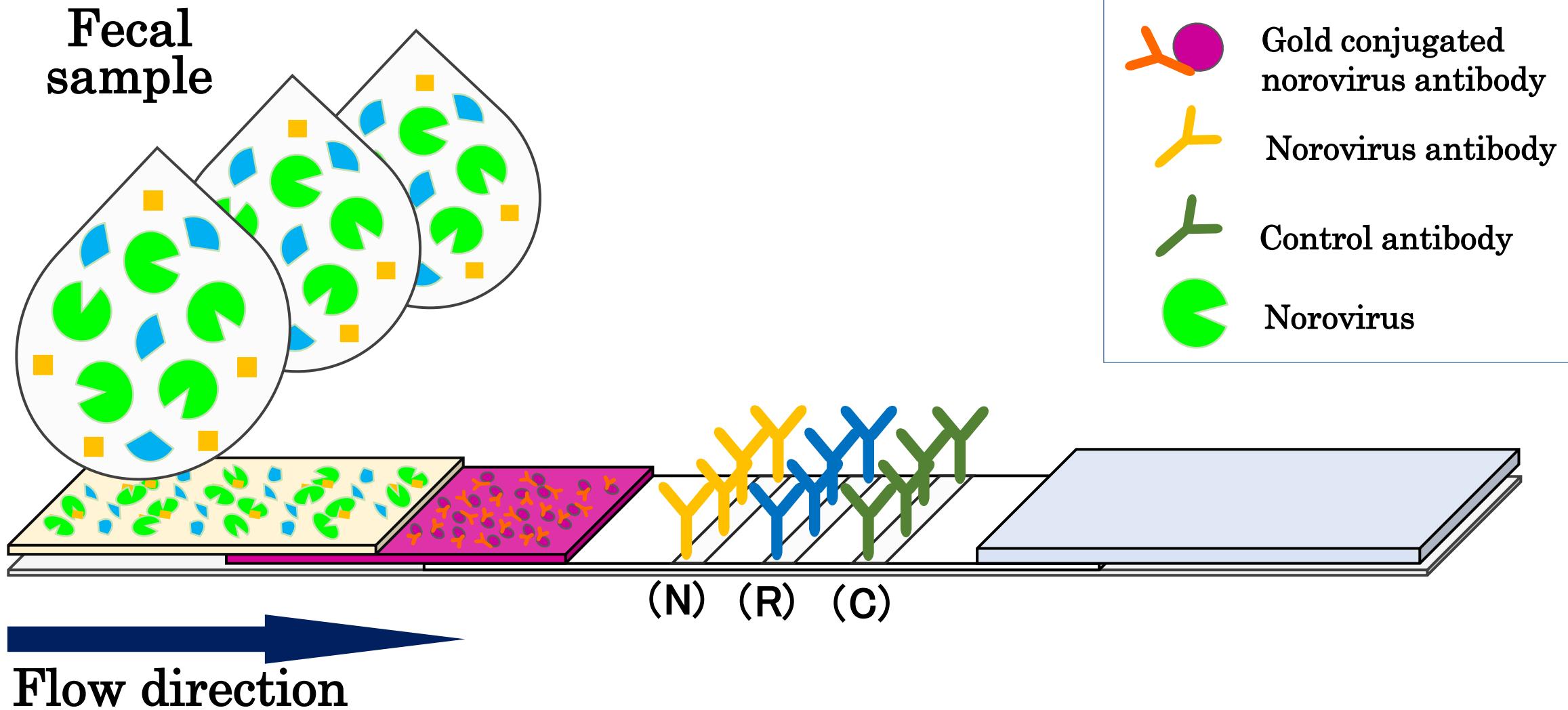
PRINCIPLE OF THE TEST



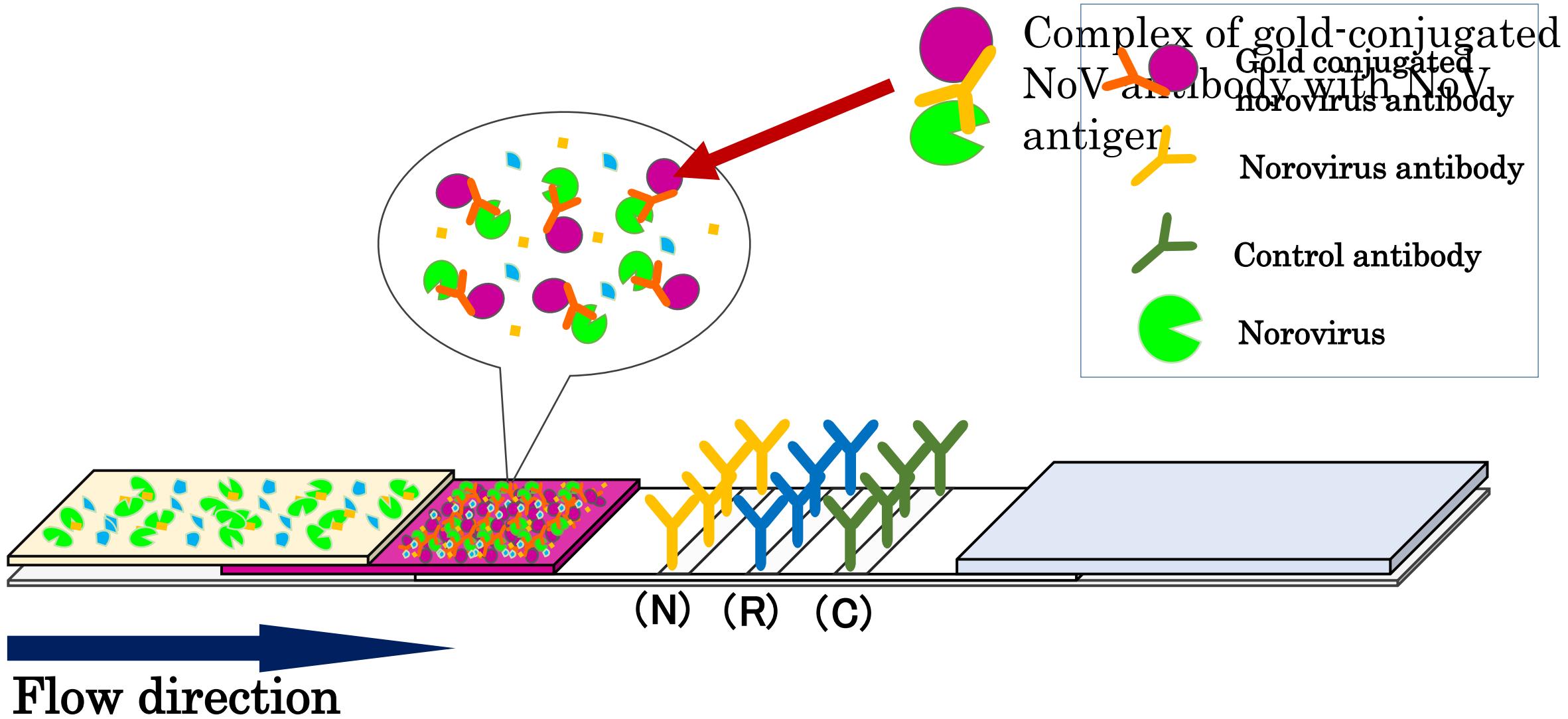
PRINCIPLE OF THE TEST



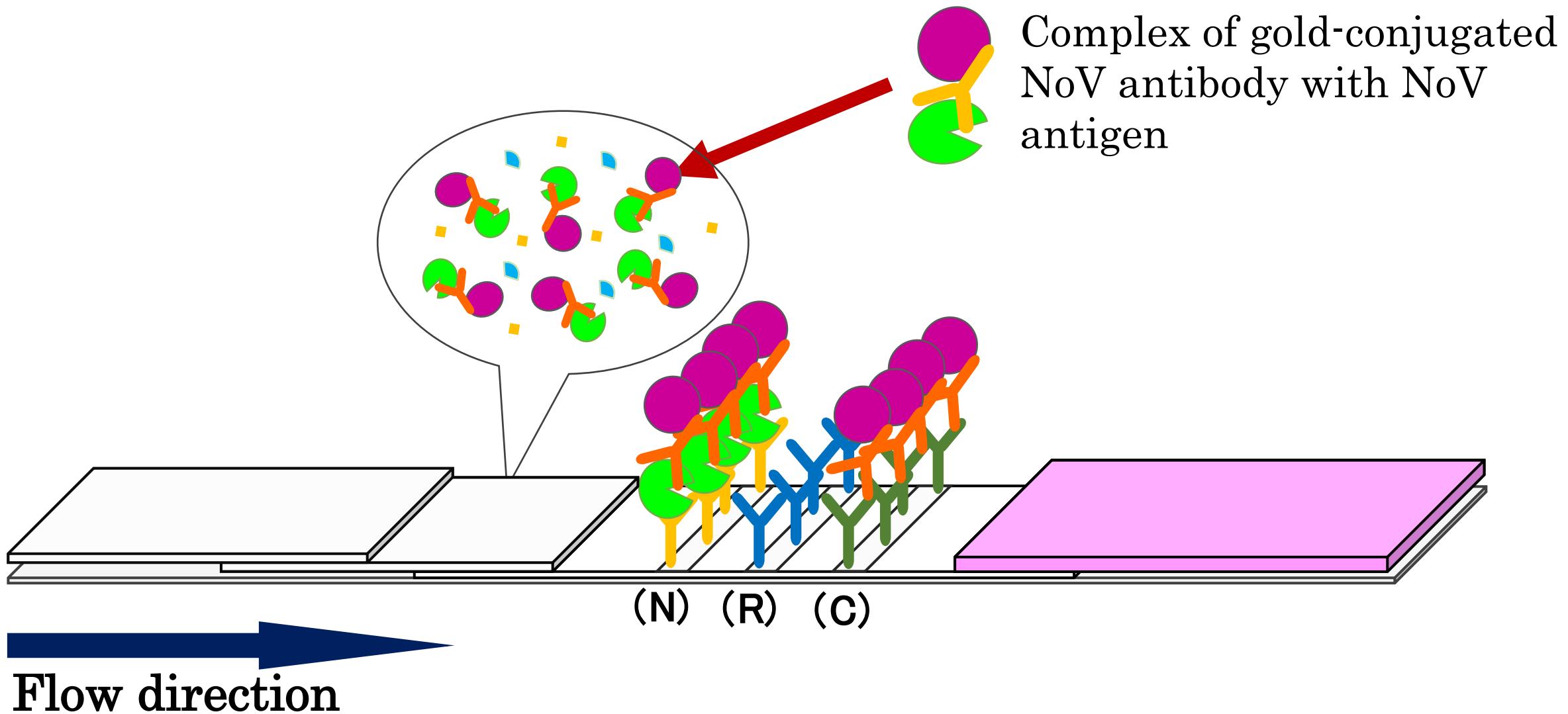
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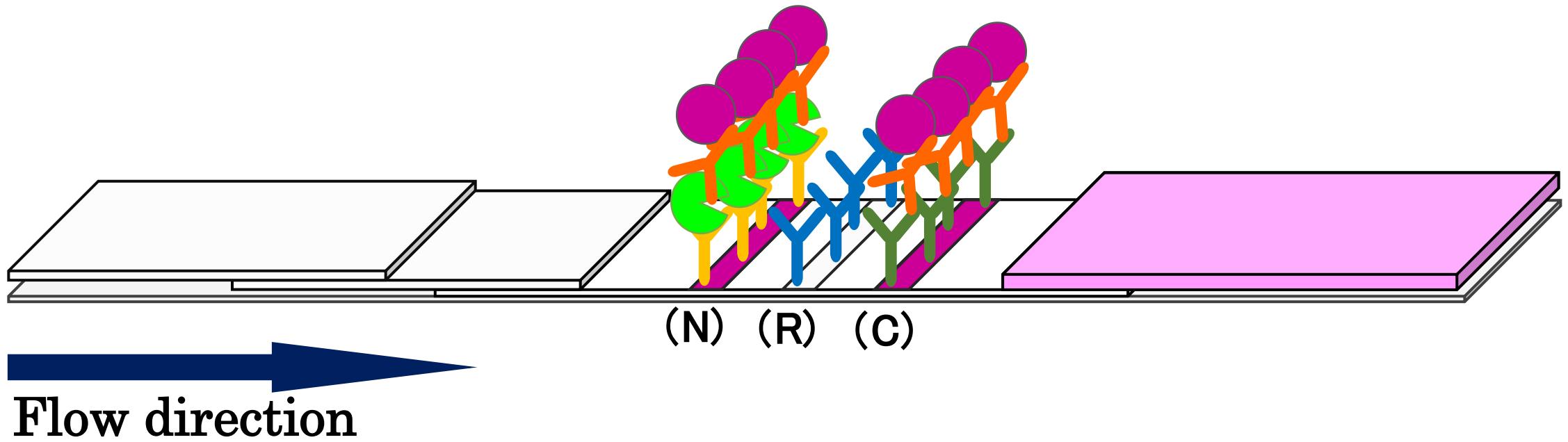
PRINCIPLE OF THE TEST



PRINCIPLE OF THE TEST

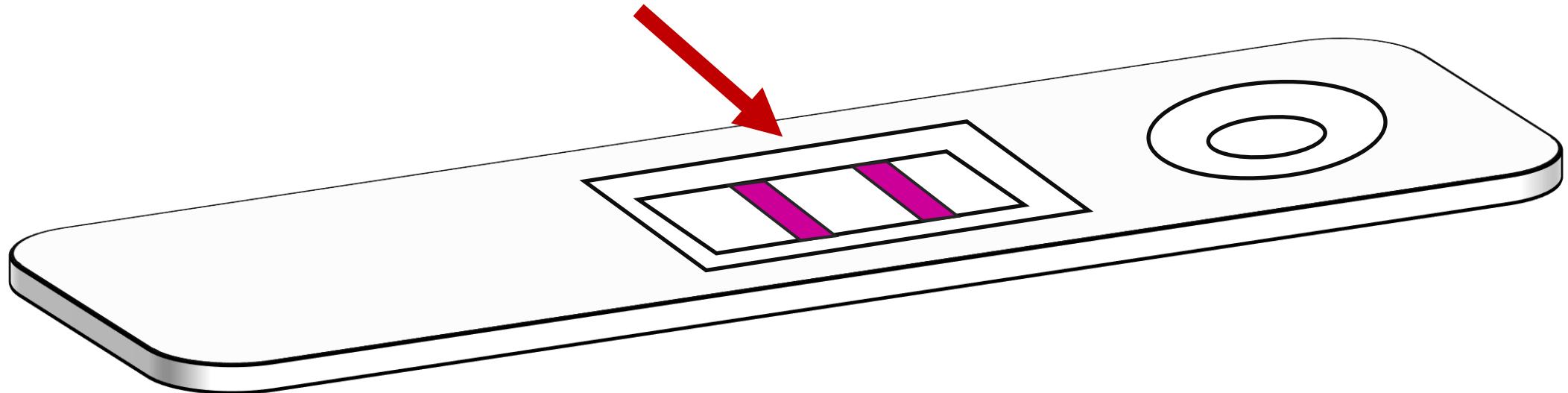


PRINCIPLE OF THE TEST



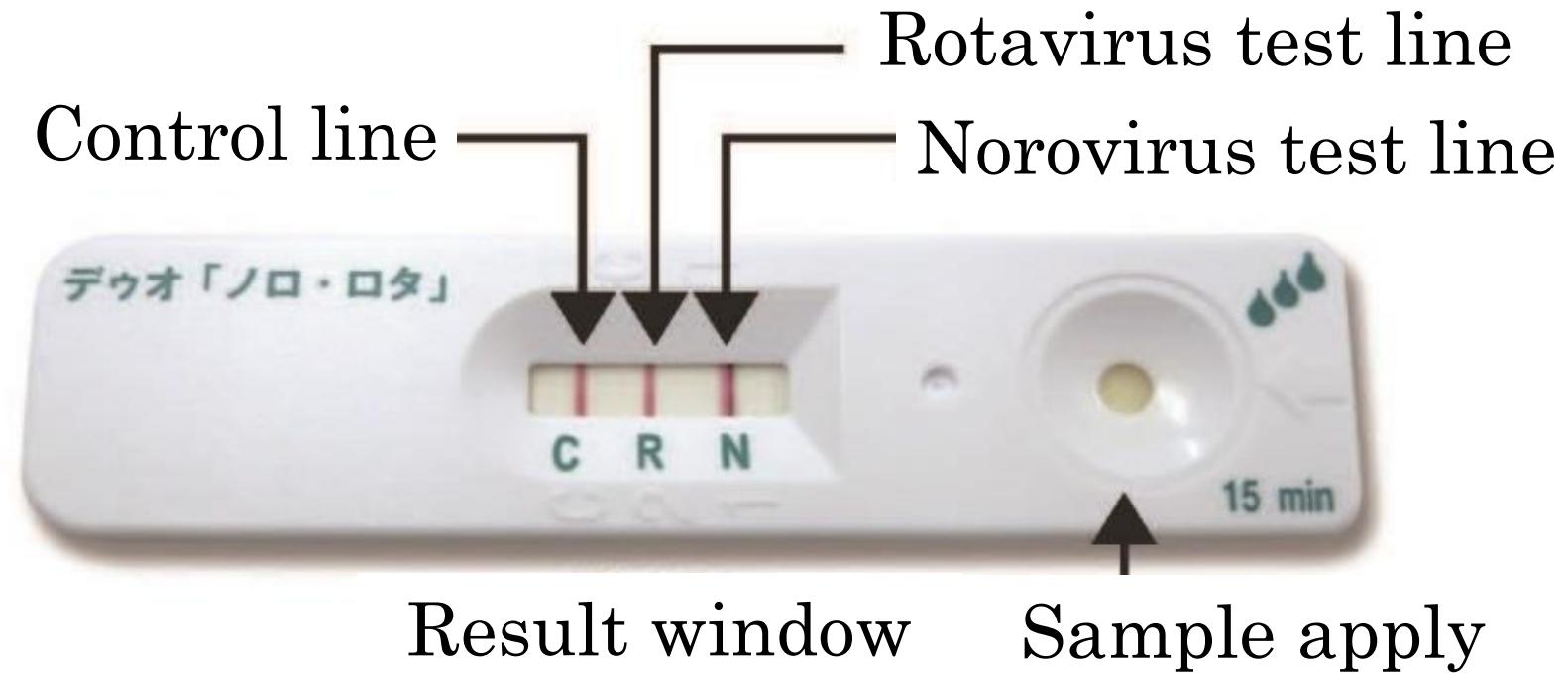
PRINCIPLE OF THE TEST RESULT

Visualization of reddish lines



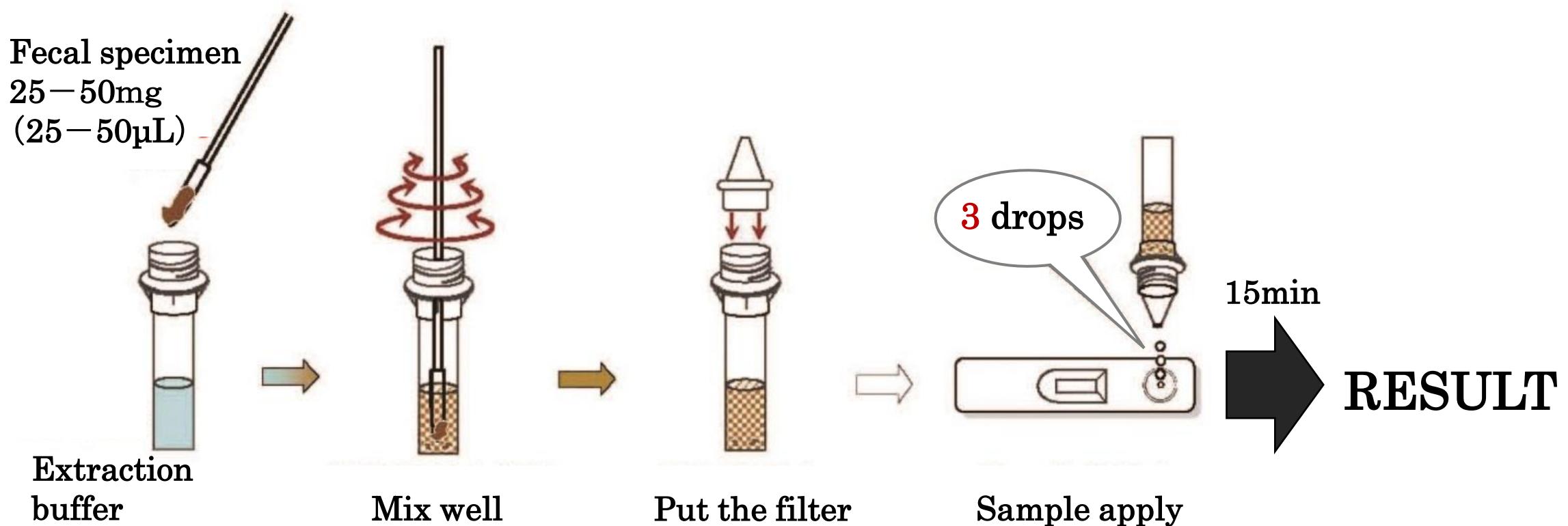
IP Line Duo “Noro/Rota”

RESULT



HOW TO USE THE KIT

PROCEDURE

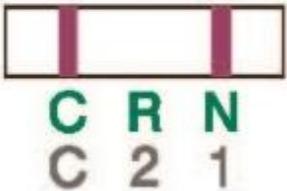


HOW TO USE THE KIT

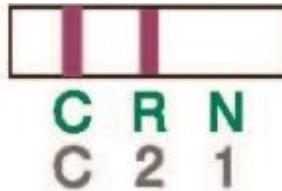
RESULT

POSITIVE

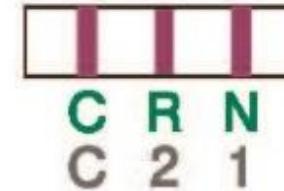
NORO
POSITIVE



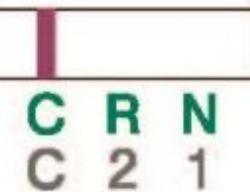
ROTA
POSITIVE



NORO-ROTA
POSITIVE



NEGATIVE



SPECIFICITY

Noro

VLP (Virus Like particle)

Genogroup I: 1, 3, 4, 6

Genogroup II: 1, **2**, 3, 4, 5, 6, 7, 12, 13, 14, 16, **17**

VLP: recombinant capsid protein of norovirus

Rota

Group A

G serotype: 1, 2, 3, 4, 9

P serotype: 8

SENSITIVITY

Noro

Sample	Norovirus	Virus (copies/mL)	IP Line Duo “Noro/Rota”
1	GII.3	5.8×10^5	Positive
2	GII.2	4.0×10^6	Positive
3	GII.4	1.1×10^4	Positive
4	GII.6	1.7×10^6	Positive
5	GII.7	1.9×10^5	Positive
6	GII.17	6.1×10^5	Positive

Rota

Sample	Rotavirus	Median tissue culture infectious dose (TCID50/mL)	IP Line Duo “Noro/Rota”
1	SA-11	1.1×10^5	Positive

TCID50/mL: 50% tissue culture infectious dose

NOROVIRUS COMPARATIVE STUDY

IC: Immunochromatographic test

		Commercial kit A (IC)		
		Positive	Negative	Total
IP Line Duo “Noro/Rota” (IC)	Positive	56	4 *1	60
	Negative	0	60	60
	Total	56	64	120

n = 120

Sensitivity: 100% (56/56)

Specificity: 93.8% (60/64)

*1 RT-PCR Positive for 4 samples

ROTAVIRUS COMPARATIVE STUDY

IC: Immunochromatographic test

		Commercial kit B (IC)		
		Positive	Negative	Total
IP Line Duo “Noro/Rota” (IC)	Positive	56	1 *5	57
	Negative	4 *4	59	63
	Total	60	60	120

n = 120

Sensitivity : 93.3% (56/60)

Specificity : 98.3% (59/60)

*4 RT-PCR Negative for 4 samples

*5 RT-PCR Positive for 1 sample

CONCLUSION

- High sensitivity
 $10^4 - 7$ copies/mL
- Detect the wide range
of norovirus genotypes including GII.2, GII.4 and GII.17
- Rapid (<15 min) and simultaneous detection of norovirus
and rotavirus

