



## recomLine HantaPlus IgG

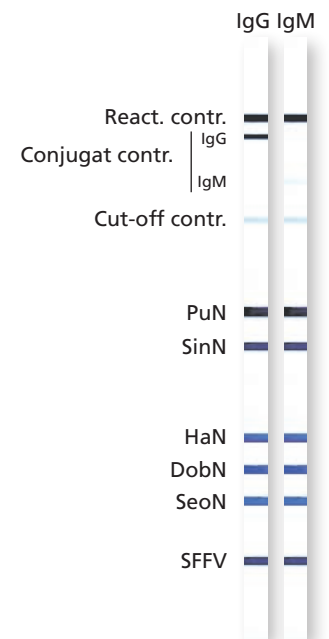
## recomLine HantaPlus IgM

Strip-Immunoassay with antigens produced by recombinant techniques for the detection of IgG and IgM antibodies against Hantavirus (serotypes Puumala (PuN), Sin Nombre (SinN), Hantaan (HaN), Dobrava (DobN) and Seoul (SeoN)) as well as Sandfly Fever Virus (SFFV) serotypes Toscana and Sicilian.

Most of the Bunyaviruses can be found in the tropics and subtropics. An exception are the genera of Hantavirus und Phlebovirus which are also represented in Europe as well.

**Hantavirus:** Different rodent species are vectors for the different hantavirus serotypes Puumala, Sin Nombre, Dobrava, Hantaan and Seoul. Many other serotypes are described in literature to be found in isolated areas. Based on a significant homology within the N-terminal part of the virus nucleocapsid antigen, hantaviruses can be divided in two serological groups, Puumala and Sin Nombre, and the group of Hantaan, Dobrava and Seoul. Hantaviruses are transmitted via stirred and inhaled dust, contaminated with rodents droppings. Hantavirus outbreaks regularly monitored every two to three years are very likely interconnected with an excessive food supply for the vector animals (rodents) and their proliferation. Typical peaks in case numbers can be related to holiday seasons and spring-cleaning activities, like cleaning basement, outbuilding or summer houses with unattended rodent infestation. There are no cases described for human to human transmission. The onset of a hantavirus infection is characterized by flu-like symptoms. The Puumalavirus prevalent in Europe can cause renal failures requiring hemodialysis and intensive care treatment. This Nephropathia epidemica (NE), describes a moderate form of the hemorrhagic fever with renal syndrom (HFRS), caused by infections with the virus types Dobrava, Hantaan and Seoul. The lethality of a Puumala infection is reported to be less than 1%. An infection with Sin Nombre or Andes virus may result in a severe Hantavirus Pulmonary Syndrom (HPS) with lethality rates reported over 30%.

**Sandfly Fever Virus (SFFV):** A few Bunyaviruses in Europe are transmitted by the Sandfly (Phlebotomus pappatasi), which is present in the mediterranean area. Sandfly Fever, synonym Pappatasi Fever, is characterized by fever symptoms and headache. More severe courses with fever, strong, frontal headache and an aseptic meningitis with neurological symptoms are described for infections with the serotypes Toscana and Sicilian.



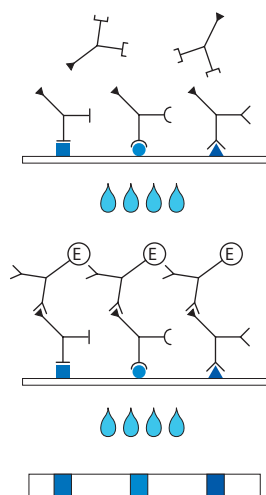
### Advantages of serological testing

- Early-stage diagnosis through inexpensive serological IgM assay
- Supportive therapy to minimize courses requiring intensive care treatment and hemodialysis
- Avoiding ineffective antibiotic treatment (resistances) based on false diagnosis like flu
- Standardized test protocols (incubation- and washing steps) for easy lab implementation
- Developed in cooperation with the German Reference Laboratory for Hantaviruses

### Recombinant Bunyavirus Antigens

Antigen band	Description
PuN	Serotype specific N-terminal part of the Puumala virus nucleocapsid antigen
SinN	Serotype specific N-terminal part of the Sin Nombre virus nucleocapsid antigen
HaN	Serotype specific N-terminal part of the Hantaan virus nucleocapsid antigen
DobN	Serotype specific N-terminal part of the Dobrava virus nucleocapsid antigen
SeoN	Serotype specific N-terminal part of the Seoul virus nucleocapsid antigen
SFFV	Complete Sandfly Fever Virus nucleocapsid antigen (Serotype Toscana and Sicilian)

## Test Principle and Procedure



- 1<sup>st</sup> Incubation** A test strip loaded with Bunyavirus antigens is incubated with diluted serum or plasma in a dish for **1 hour**.
- wash 3 times
- 2<sup>nd</sup> Incubation** Peroxidase conjugated anti-human antibodies (IgG or IgM specific) are added. Incubate for **45 minutes**.
- wash 3 times
- Color reaction** **8 minutes** after addition of the coloring solution, insoluble colored bands develop at the sites on the test strips occupied by antibodies.

## Evaluation

### Performance data

Clinically defined sera	<i>recomLine HantaPlus</i>			
	Anti-Hantavirus IgG (n = 95)		Anti-Hantavirus IgM (n = 94)	
	Positive	Negative	Positive	Negative
Positive	74	0	59	2
Negative	3	18	1	32
Total	77	18	60	34
Sensitivity	96.1%		98.3%	
Specificity	100%		94.1%	

### Serotyping

<i>recomLine HantaPlus IgG</i>	Serotype Puumala	Serotype Dobrava
Puumala/SinNombre	10	0
Hantaan/Dobrava/Seoul	0	12
Total	10	12
Serotyping	100%	100%

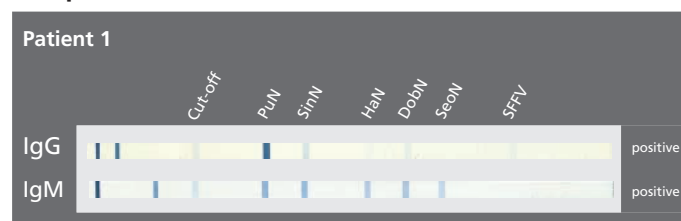
### Seroprevalence

Parameter	<i>recomLine HantaPlus IgG</i>		<i>recomLine HantaPlus IgM</i>	
	Anti-Hantavirus IgG	Anti-SFFV IgG	Anti-Hantavirus IgM	Anti-SFFV IgM
Sample number	193	193	191	191
Positive	2	5	3	0
Negative	191	188	188	191
Seroprevalence	1.0%	2.6%	1.6%	0%

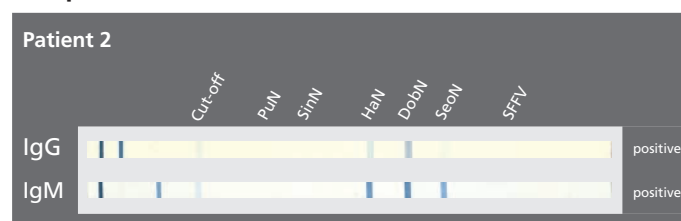
### Article-No.

- 7672 ***recomLine HantaPlus IgG***  
 7673 ***recomLine HantaPlus IgM***  
 Reagents for every 20 determinations
- 31006 ***recomScan Auswertesoftware***

### Sample: acute Puumala Infection



### Sample: acute Dobrava Infection



### Storage

+2°C - +8°C