

Detection of Avian Influenza by Rapid Test System(*)

Flu A+B-Neo

Flu A-Neo

(Research use only)

Developer: BL Co., LTD

Manufacture  **TAUNS LABORATORIES, INC**

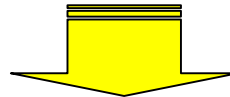


(*)Patent Pending

Need for extensive Avian Flu detection system

- Influenza viruses constantly mutate. Therefore, anticipating what subtypes of Avian Flu could be adapting to human is very difficult.
- Besides H5N1 infections, following human infections have been reported recently.

- | | | | | |
|--------|-------------|------|--|------------|
| • 1999 | Hong Kong | H9N2 | 2 persons were infected. | |
| • 2003 | Netherlands | H7N7 | Over 370 persons were infected. 1 veterinarian died. | |
| • 2003 | Hong Kong | H9N2 | 1 boy was infected. | |
| • 2005 | Japan | H5N2 | Antibodies to H5N2 were detected from several persons. | and others |



Need for Avian Flu detection system with following features as a measure against future pandemic

- Detect all subtypes of Avian Flu with high sensitivity
- Could be effective even for mutating viruses
- Be handled easily and rapidly

Features of Flu A+B-Neo and Flu A-Neo

- We developed two Rapid Tests for Influenza viruses. Both tests detect **Nucleoproteins** which are stable in case of virus mutation.
- **Flu A+B-Neo** and **Flu A-Neo** constitute our Avian Flu detection system.

<Flu A+B-Neo>

- **Detect all subtypes of Flu A and Flu B with high sensitivity**
- **Detect Nucleoproteins**
- **Can be handled without special techniques and training**
- **No need for special instruments**
- **Detection time: within 15 min. (3 min. for positive detection)**

<Flu A-Neo>

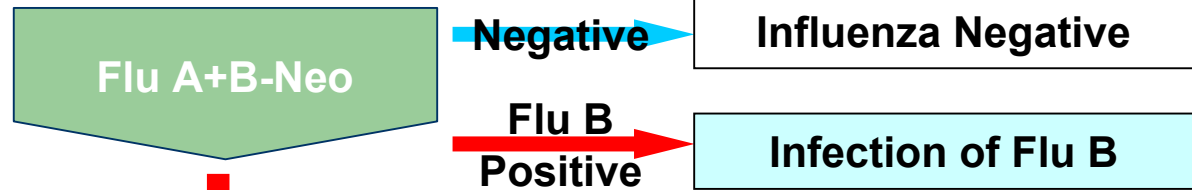
- **Highly specific only to Human Flu A (H1,H2,H3)**
- **Detect Nucleoproteins**
- **Can be handled without special techniques and training**
- **No need for special instruments**
- **Detection time: within 15 min.**

Avian Flu detection by Rapid Test System(*)

➤ By using both **Flu A+B-Neo** and **Flu A-Neo** as a system, **Avian Flu-infected Patients** could be discriminated from patients infected with Human Flu very rapidly.

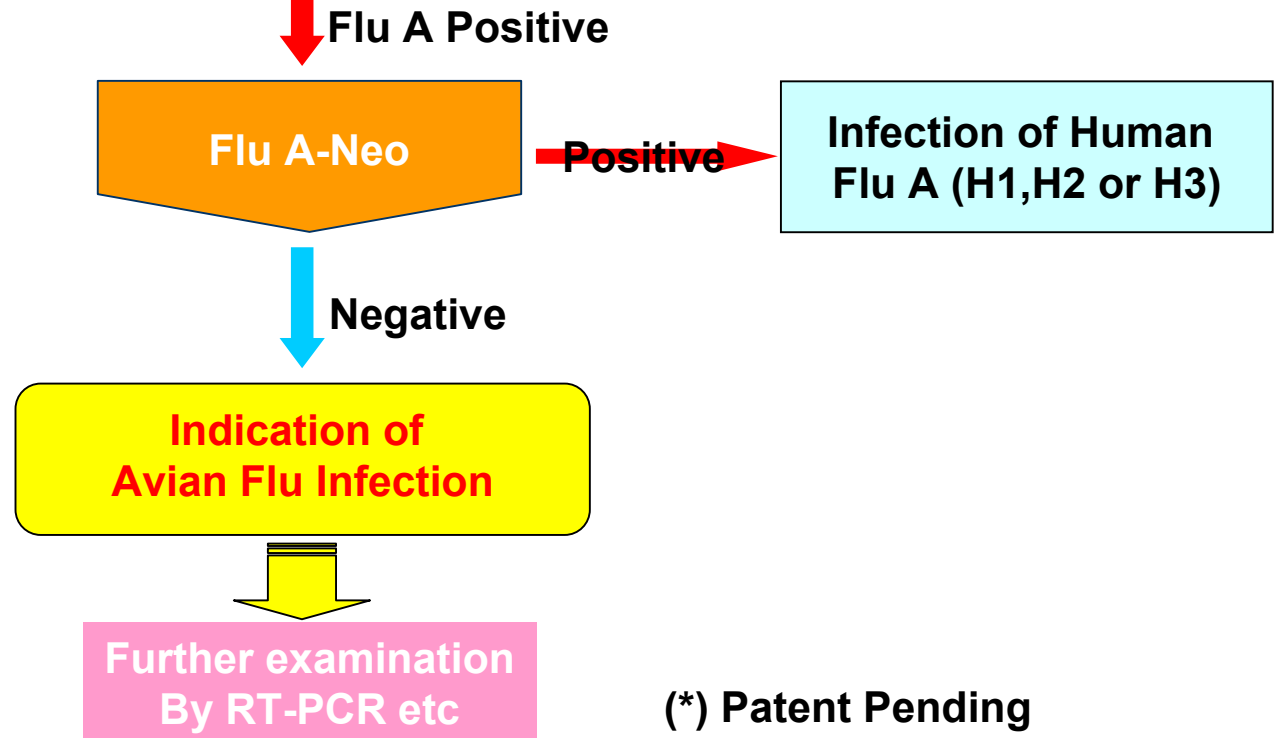
<Step 1>

Flu Detection
(3~15 Min.)



<Step 2>

Discrimination
between Human
Flu & Avian Flu
(within 15 Min.)



(*) Patent Pending

Difference in Reactivity to Influenza A Subtypes : Flu A+B-Neo and Flu A-Neo

Subtype	Strain	Flu A+B Neo	Flu A Neo
H1N1	A/Newcaerednia/20/99	2+	+
H2N2	A/Adachi/1/57	2+	+
H3N2	A/Panama/2007/99	2+	+
H5N1	A/Vietnam/1194/04 (Clade 1)	3+	—
H5N1	A/Hongkong/156/97(Clade 3)	3+	—

Isolated from
Human

H1N1	A/Duck/Tottori/723/80	3+	—
H2N3	A/duck/Hokkaido/17/01	3+	—
H3N8	A/Duck/Mongoria/4/03	3+	—
H4N6	A/Duck/Czeck/56	3+	—
H5N1	A/Chicken/Yamaguchi/7/04(Clade 2.4)	3+	—
H5N1	A/Whooper swan/Hokkaido/1/08 (Clade 2.3.2)	3+	—
H5N1	A/Whooper swan/Mongolia/3/05 (Clade 2.2)	3+	—
H5N2	A/duck/Pennsylvania/10218/84	3+	—
H5N3	A/Duck/HongKong/820/80	3+	—
H6N2	A/turkey/Massachusetts/3740/65	3+	—
H6N5	A/Shearwater/Austlalia/1/72	3+	—
H7N1	A/Chicken/Italy/99	3+	—
H7N3	A/chicken/Pakistan/447/95	3+	—
H7N7	A/seal/Massachusetts/1/80	3+	—
H7N7	A/Tufted duck/shimane/124R/80A/Turkey	3+	—
H7N7	A/Chicken/Netherlands/2586/03	2+	—
H8N4	A/Turkey/Ontario/67	3+	—
H8N4	A/Turkey/Ontario/6118/68	3+	—
H9N2	A/Turkey/Wisconsin/66	3+	—
H10N7	A/Chicken/Germany/N/49	3+	—
H11N6	A/Duck/England/1/56	3+	—
H12N5	A/Duck/Alberta/60/76	3+	—
H13N6	A/Gull/Maryland/704/77	3+	—
H14N5	A/Mallard/Astrakhan/263/82	3+	—
H15N8	A/Duck/Australia/341/83	3+	—
H16N3	A/Black-headed gull/Sweden/5/99	3+	—

Isolated from
Animals

Virulent Strain

Example of Avian Flu Detection

- Flu A+B-Neo reacts to all sample Flu viruses very clearly.
- Flu A-Neo reacts only to Human Flu(H1N1) virus.

Detection Kit: **Flu A+B-Neo**
 Flu A-Neo

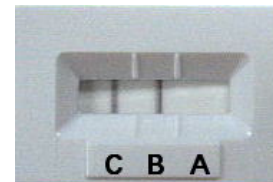
Virus Strain: **Flu A H1N1 : A/Newcaledonia/20/99**
 H5N1 : A/Chicken/Yamaguchi/7/04
Flu B B/Harbin/07/94

**Flu A (H1N1)
Virus**

**Flu B
Virus**

**Flu A (H5N1)
Virus**

<Flu A+B-Neo>



<Flu A-Neo>



Conclusion-1

We plan to apply our Rapid Test System to the detection of Avian Flu Viruses in human.

<Outline of our Rapid Test System>

- 1. Flu A+B-Neo is highly sensitive to all subtypes of Influenza viruses.**
- 2. Flu A-Neo is highly sensitive to Human Flu A(H1,H2,H3), but not to other Flu A viruses.**
- 3. By the combination of Flu A+B-Neo and Flu A-Neo, Avian Flu-infected Patients could be discriminated from patients infected with Human Flu very rapidly.**

Conclusion-2

We plan to apply our Rapid Test System to the detection of Avian Flu Viruses in human.

<Advantages of our Rapid Test System>

- **Detect all subtypes of Avian Flu with high sensitivity**
- **Could be effective even for mutating viruses (NP detection test)**
- **Be handled easily and rapidly**
 - **No need for special techniques and training**
 - **No need for special instruments**
 - **Prompt test result (within 30 min. from Step 1 to Step 2).**