Quantitative assessment of the thrombus formation process under variable flow conditions

**T-TAS® plus**

Using T-TAS® plus for research, the white thrombus formation occurring in the chip can be observed and quantitatively analyzed under arterial and venous flow conditions.

**Features**

1. White thrombus growth rate and stability are easily evaluated through pressure waveform and indicators
2. Real time visual observation of thrombus formation with CCD camera
3. Small amount of whole blood per assay (320 μL or 450 μL)
4. Rapid measurement (10 min to 30 min)

**Applications**

2 types of chips for evaluation of different thrombus formation

- **PL chip (coated with collagen)**
  For observation and analysis of platelet thrombus formation

- **AR chip (coated with collagen and tissue thromboplastin)**
  For observation and analysis of thrombus formation composed of fibrin and activated platelets

**T-TAS®plus components:**

- Sample reservoir
- Overcap
- Waste tank (for AR chip)

*T-TAS is a trademark registered by Zacros Fujimori Kogyo.*
# Measurement principle

Whole blood flows through the chip channel and thrombi occur from the interaction with collagen/tissue thromboplastin with produces an increase in pressure. The measured pressure change (kPa) is assessed as start/stop occlusion time, area under the curve (AUC), and additional parameters. Thrombus formation is recorded with a CCD camera.

# Chip overview

**PL chip:** platelet thrombus formation  
**AR chip:** platelet / fibrin thrombus formation

![Chip overview diagram](image)

- **Anticoagulated whole blood**
- **Collagen**
- **Flow pressure sensor**
- **EDTA pump**
- **Mineral oil pump**
- **Blood reservoir**
- **Outlet port**
- **Camera**
- **AR chip**
- **Pressure waveform**
- **Real time visualization**

# T-TAS® plus device specifications

<table>
<thead>
<tr>
<th></th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>270 W x 380 D x 310 H (mm)</td>
</tr>
<tr>
<td>Weight</td>
<td>~13 kg</td>
</tr>
<tr>
<td>Laptop</td>
<td>Dell Latitude E3550 (OS Windows 7, 32 bit) with T-TAS® plus software</td>
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<tr>
<td>Flow System</td>
<td>Micro pump with fixed shear rates</td>
</tr>
<tr>
<td>Measurement Time</td>
<td>AR chip &lt;30 min; PL chip &lt;10 min</td>
</tr>
<tr>
<td>Camera</td>
<td>Image resolution 1024 X 768, MPEG</td>
</tr>
</tbody>
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