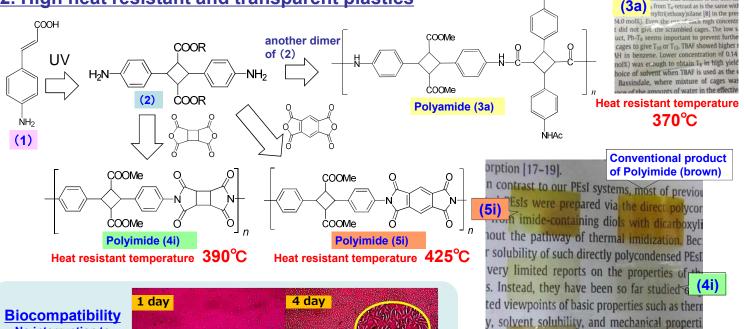
Associate Prof. Tatsuo KANEKO (Japan Advanced Institute of Science and Technology)

<u>1. Technical Summary</u>

- A combination of microbial production and photochemical reaction created monomer (2).
 - ① We have established a microbial production conditions of 4-aminocinnamic acid (1), which was generally considered difficult due to incompatibility of aniline compound with microorganisms.
 - ② By photochemical reaction of 4-aminocinnamic acid (1), the monomer (2) was synthesized in almost 100 % yield.
- Polyamides and polyimide films have been synthesized from monomer (2). These films have a very high heat resistance and excellent transparency.

2. High heat resistant and transparent plastics



No interruption to cell proliferation



3. Comparison with the conventional techniques

Conventional Techniques	Temperature
The melting point of lead-free solder	183°C~378°C
The heat-resistant temperature of Kapton [®] (DuPont)	>500°C
The heat-resistant temperature of fluorinated transparent polyamides	About 335°C

4. Potential applications

The highest heat-resistant in transparent resin	
Thermal decomposition temperature	Maximum 425°C
Linear thermal expansion coefficient (The values are comparable with metals.)	<10 ppm / K
Transmittance (High transparency)	88% @ 450 nm
Young's modulus (Strength of the material)	10 GPa
High refractive index	1.6
Other Features: Ultraviolet degradation, self-extinguishing, high dielectric breakdown resistance	

Patent Licensing Available

Patent : WO2013/073519 JST/IP Licensing Group

Phone: +81-3-5214-8486, E-mail: license@jst.go.jp

LED sealant

works

- Flexible Display Devices & Components
- Tempered glass-alternative materials

tensile properties of fibers [27], liquid Derivative

winone his(trimellitate anhydride)

30] without any attention to the CCL ap of 4i ninent feature of our PEsI systems is that the PE be directly formed on copper layers without an

s via the conventional two-step processes, i.e., ization after the solution casting of highly solu ursors like as conventional PI systems. *Je* undertook the development of PEsIs as no film materials from some simple systems, nam erived from an ester-containing tetracarboxyl

Various polyimide films processed in our

 Automobile, body material of the aircraft