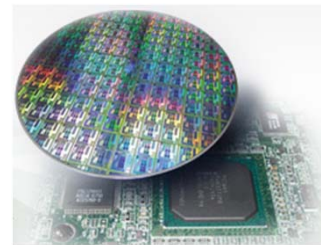




Strategy for Functional Material Development in FUJIFILM

- Global competency strategy for business innovation in Functional Material Industry -



Sep. 24, 2013
FUJIFILM Corporation

Development Strategy of Functional Materials in Japan

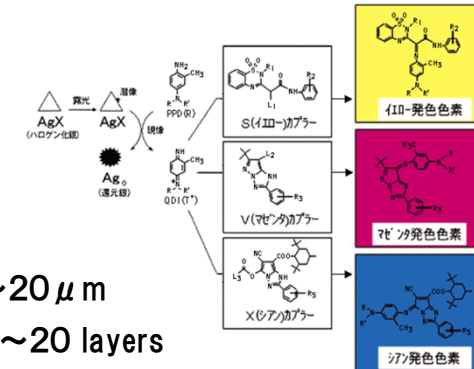
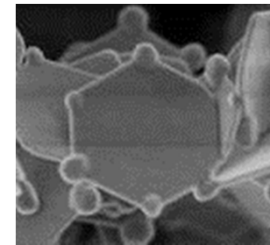
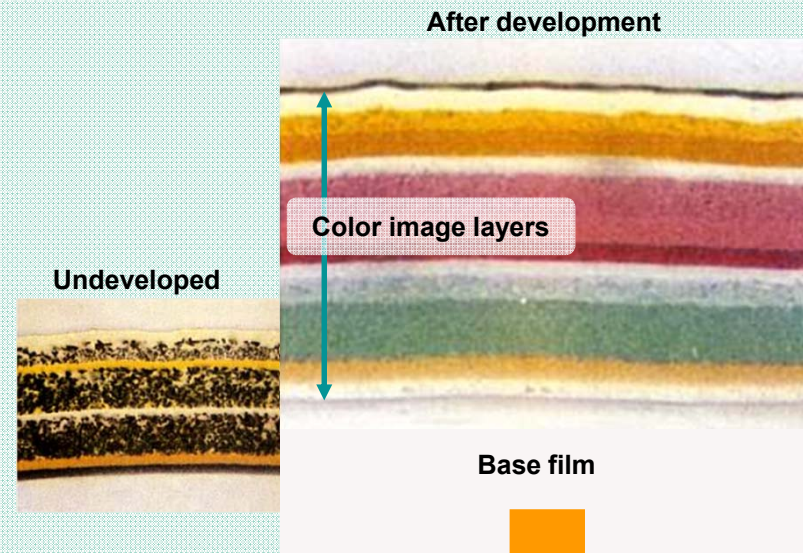
Success of Japanese firms in functional materials attracts attentions.
FUJIFILM Corp. was introduced as an example of the Functional Materials Firms.

In Japan, focus on users' needs rather than
gee-whiz technology is the key to success for
ADVANCED MATERIALS FIRMS



Wide variety of technologies construct color films

Cross section of Fujicolor HR-400



- Total thickness : $\sim 20 \mu\text{m}$
- Layer number : 16~20 layers
- Layer thickness : $\sim 1.2 \mu\text{m}$
- Precisely designed AgX grains act as photo-sensor
- Over 100 organic compounds for excellent image

Color film consists of 20 layers precisely coated on 180micron base film

Many sophisticated technologies have been developed to attain high speed image capturing and fine image reproduction.



Research direction of **FUJIFILM** toward new Business Portfolio

To promote growth by contributing to the quality of life of the people of the world

Highly Functional Materials

Flat panel display materials

Recording Media

Inkjet Ink

Fine Chemicals

Photo resist

New Functional Films (environmental, energy, electronics)

Utilization of Chemical technologies

Imaging & Printing

Document

Optical Devices

Graphic arts

Electronic Imaging

Imaging

Implementation of
Digital Technology and IT

Healthcare

Skincare, Supplement

Medicines

Medical Systems
Diagnostic Imaging
External Diagnosis

Applying to Life Science

Inorganic Chemistry

Film formation and processing

Organic Chemistry

Optics

Analytical technology

Biochemistry

Imaging

Software

Mechanics and Electronics

Fundamental Technologies of the Fujifilm Group

Fujifilm's Challenge to Versatile Functional Materials

Photographic technology application

Silver halide material utilization

Molecular design technology application

Optical function design

Nano-photonics application

Structural function design

Industrial IJ System

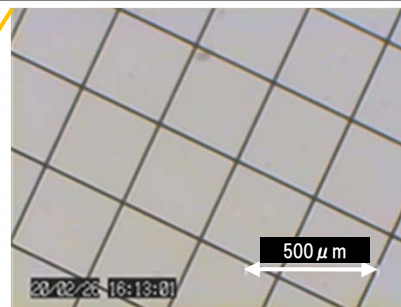
From Precise printing into Material Deposition

Life Science & Pharmaceuticals

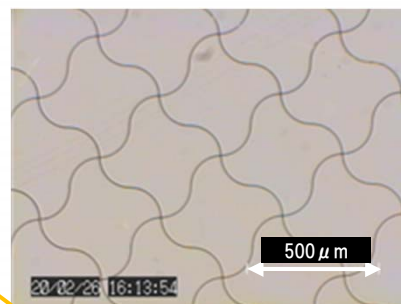
Functional Materials for Human Healthcare

Functional film based on photography

EXCLEAR® – transparent conductive film



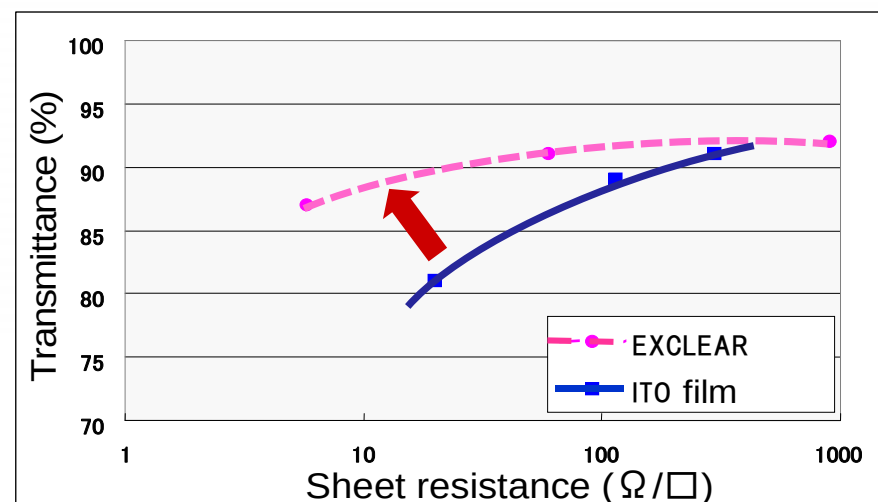
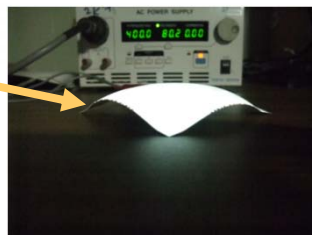
✓ To give surface conductivity on transparent film, fine Ag mesh pattern is formed on EXCLEAR using photographic process.



✓ Using light to form Ag mesh pattern, EXCLEAR can provide preferable shape of pattern.

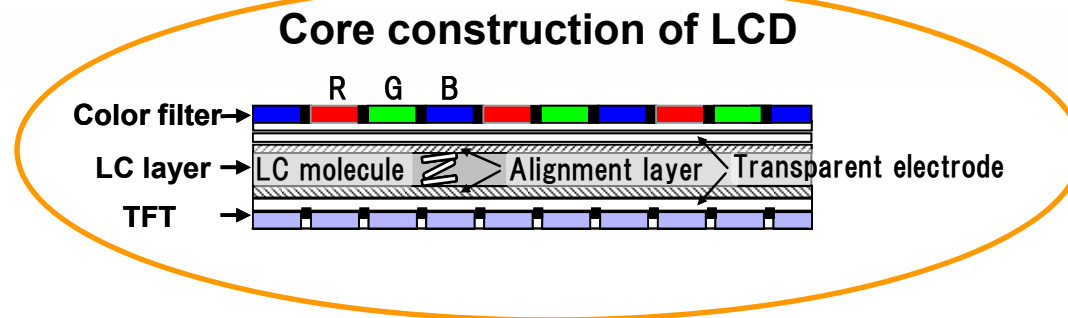
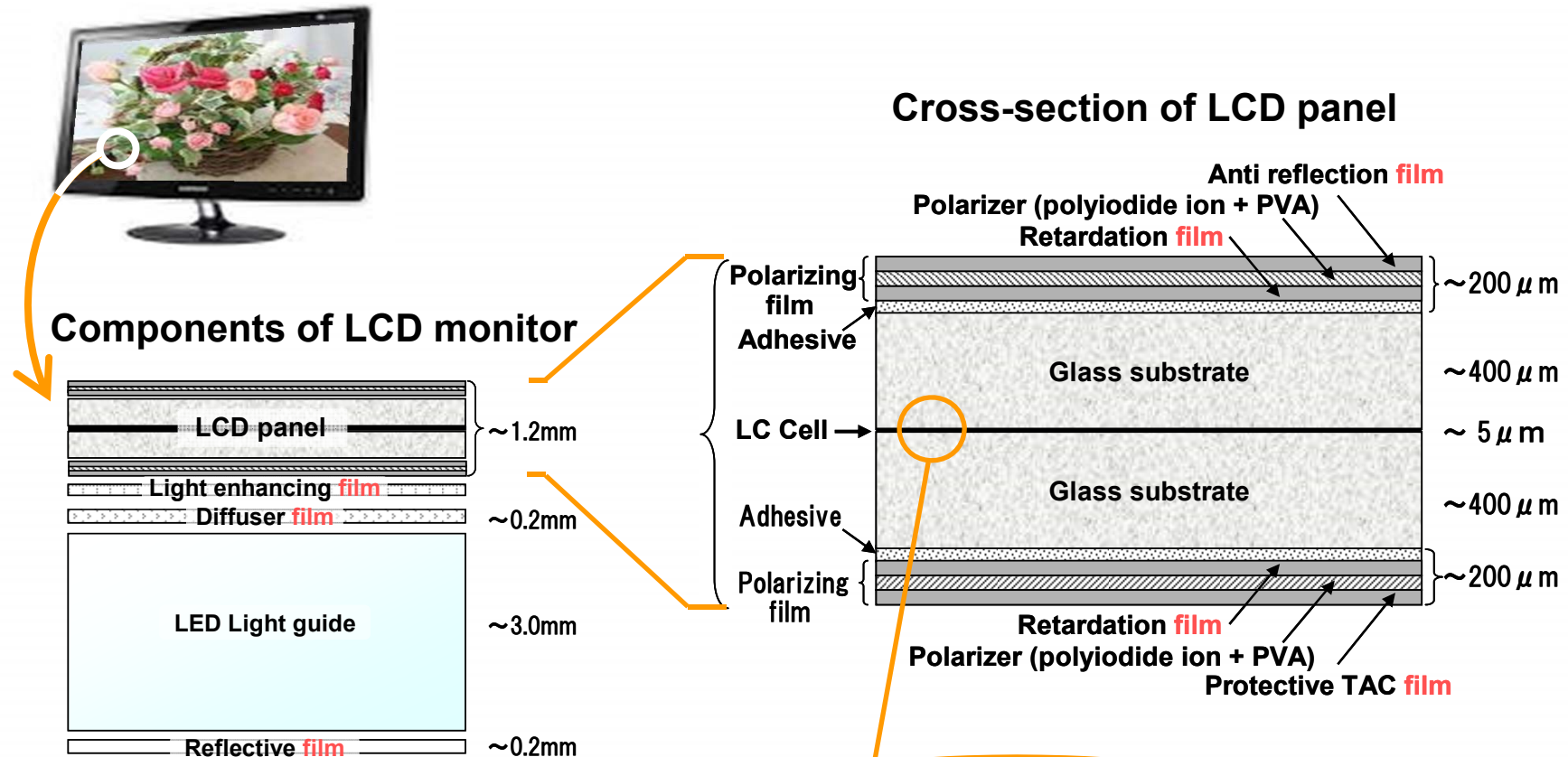
✓ EXCLEAR exhibits higher conductivity with excellent transparency compared to conventional ITO film.

Flexible Light Emitting Device using EXCLEAR as a transparent sheet electrode



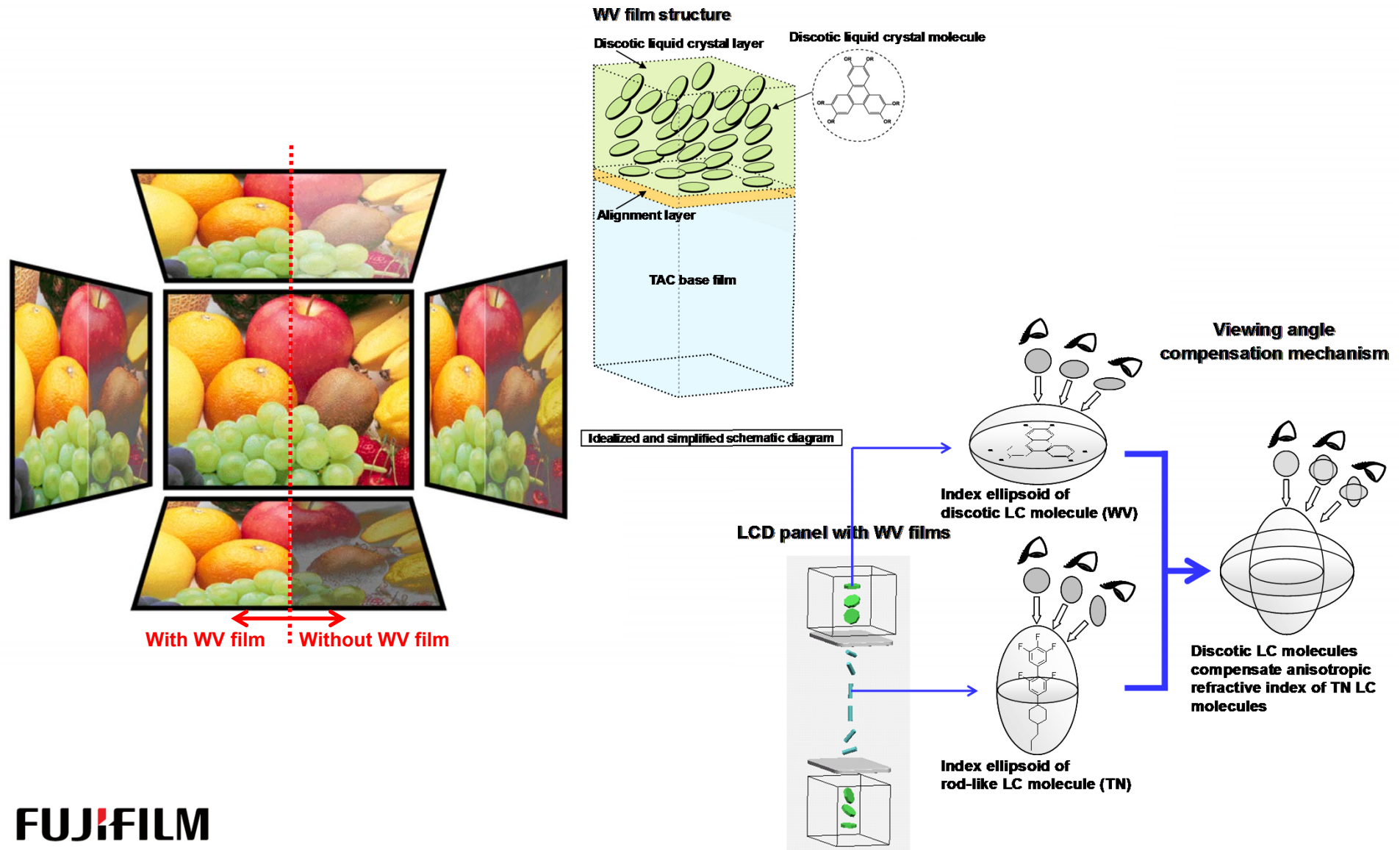
LCD consists of many functional films

Liquid Crystal Display (LCD) is the most popular device for color monitor



Optical film example for LCD – WV[®] film

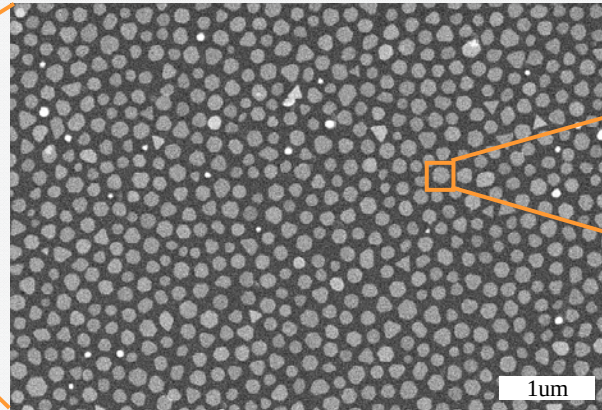
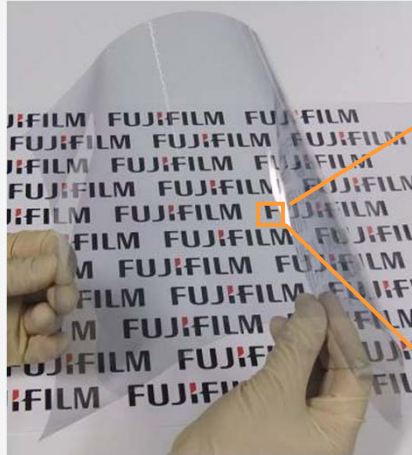
WV[®] film widens the viewing angle of LCD



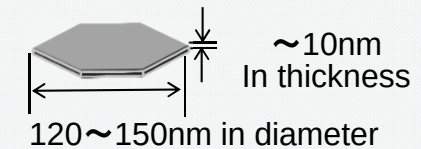
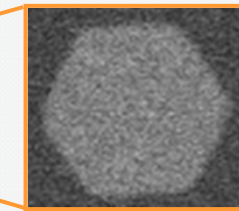
Green technology based on metamaterial

Nano Silver Pavement (NASIP)

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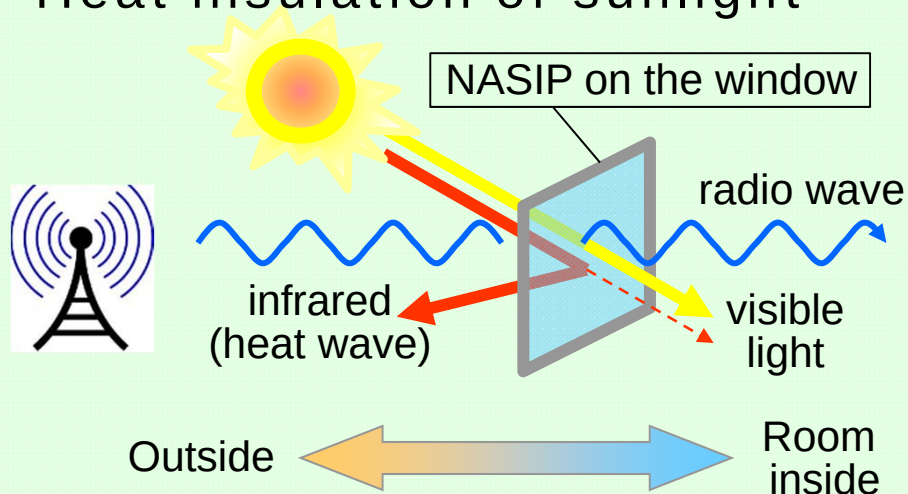


Silver Nano-disc

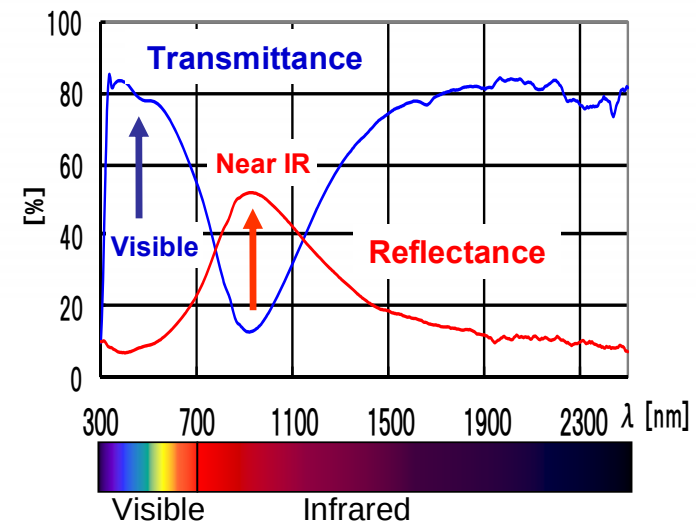


NASIP can selectively reflect infrared light

Heat insulation of sunlight



Spectral properties



Industrial Applications of Inkjet systems

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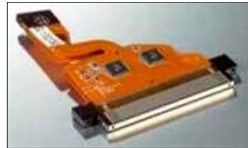
Graphic



Jet Press 720

the World's First Single-Pass, High-Speed,
Large Format Size Inkjet Printing
at High Resolutions of 1200 dpi.

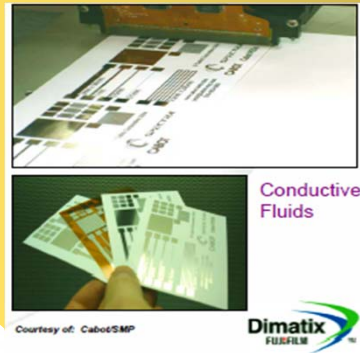
Apply



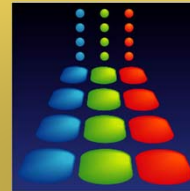
Industrial Inkjet Printer & Head

Material Deposition(MD)

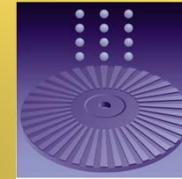
Printable Electronics



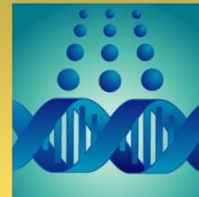
FPD



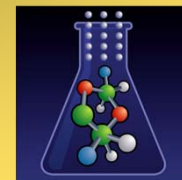
MEMS



Life science



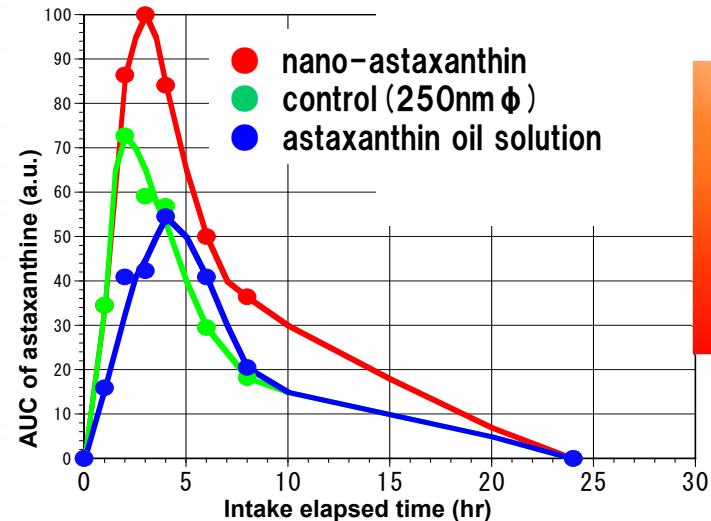
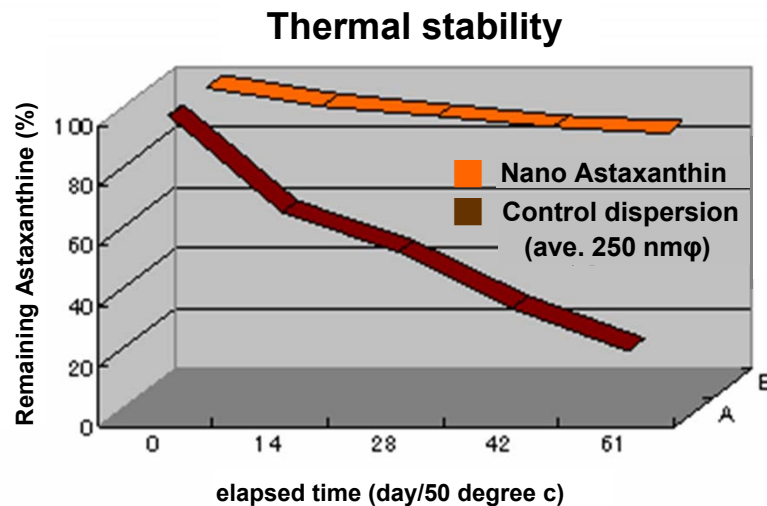
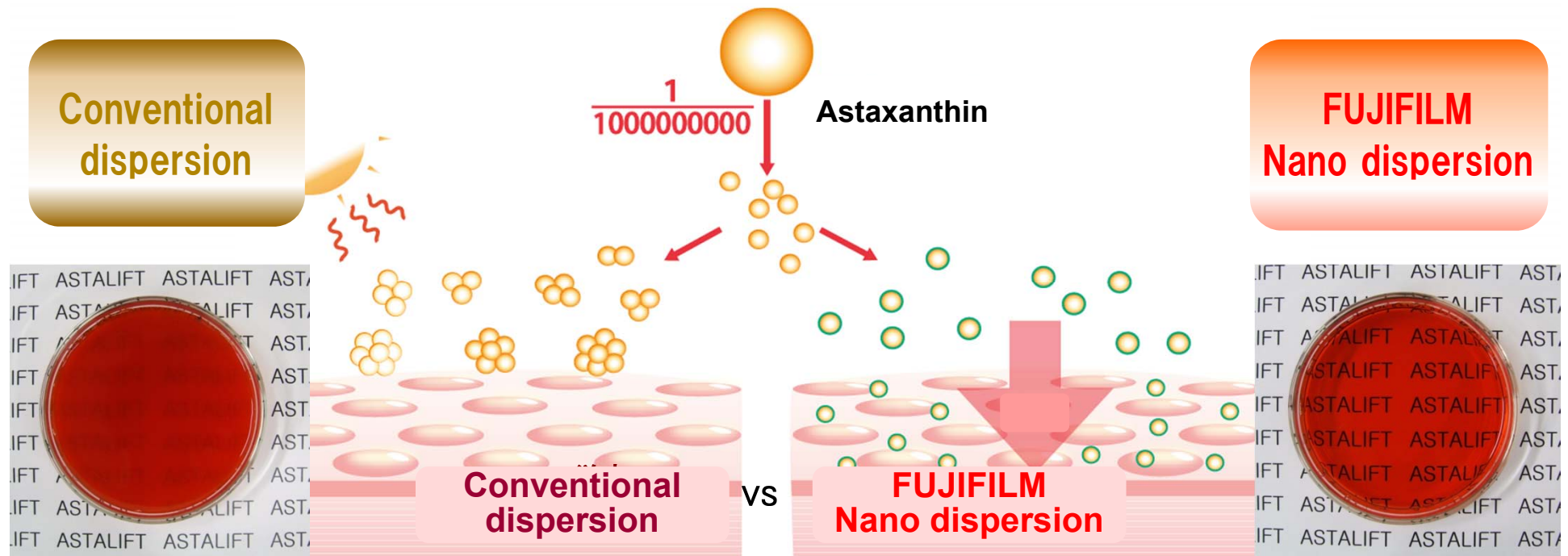
Micro chemical



Patterning Functional materials would be needed for Industrial Applications
Advantages of IJ : “Deposit materials of needed amount at needed position”



Nano-Astaxanthin Application to Skin-care Cosmetics

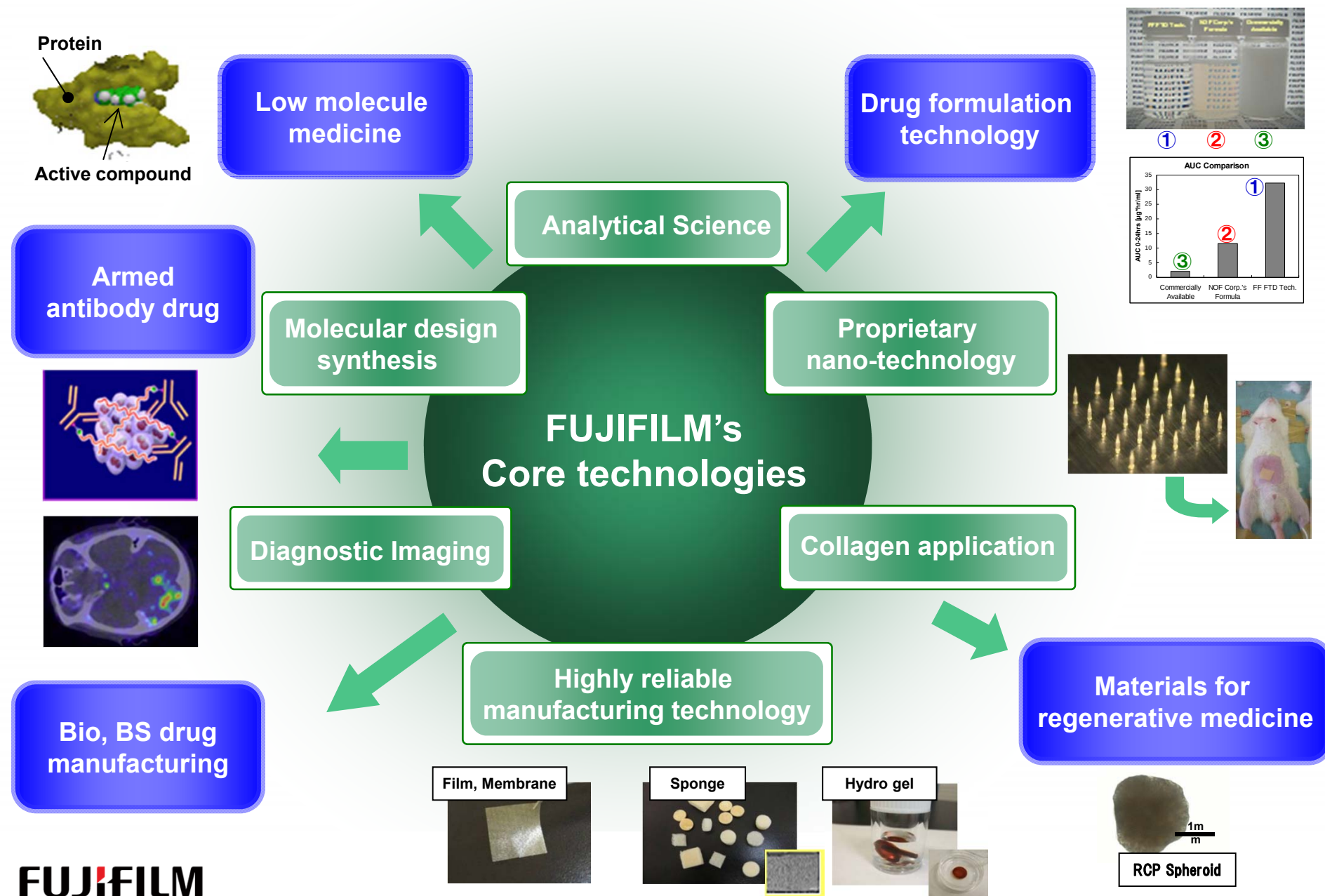


Astalift series

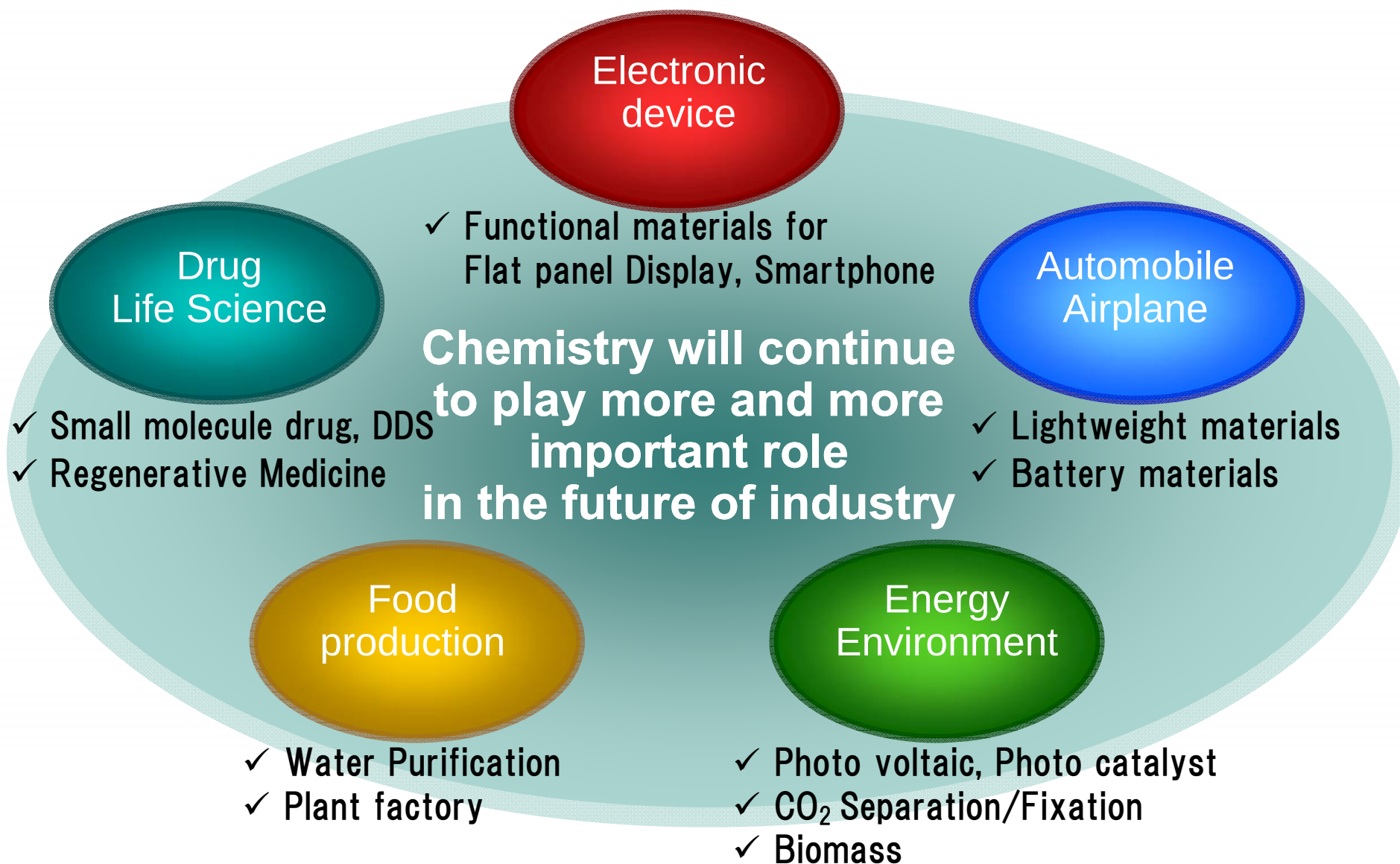


FUJIFILM

Development Strategy in Pharmaceutical area



The future of industry driven by Chemistry



nanotech Garden

Green Cycle for the Future

