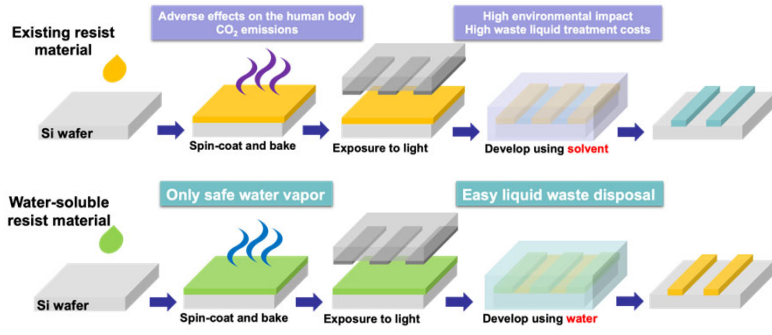


# Water-soluble Resist Material Derived From Sugar Chains (Polyglucuronic Acid)

## Back Ground

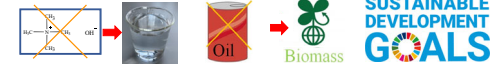
### Comparison with conventional resist materials



### Advantage of water-soluble resist material

#### Eco-friendly

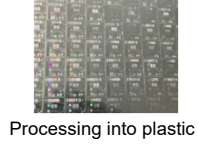
- No organic solvent required
- Simplification of waste liquid treatment
- Compatible with environmental regulations and SDGs



#### Biocompatibility

- Does not corrode or contaminate the substrate
- Can coexist with bacteria, enzymes, and viruses

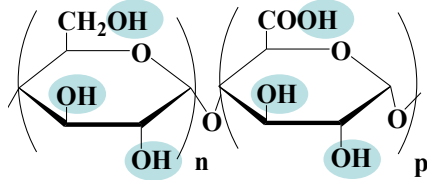
Can be patterned on plastic substrates, metals, cell sheets, etc. that are sensitive to organic solvents.



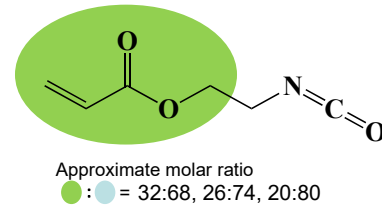
## Methods

### Synthesis of material

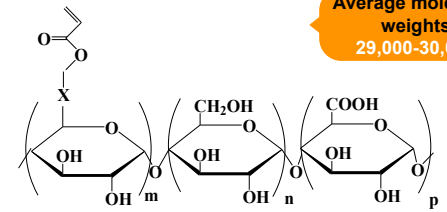
#### (a) Sugar Polymer Derivatives



#### (b) 2-acryloxyethyl isocyanates

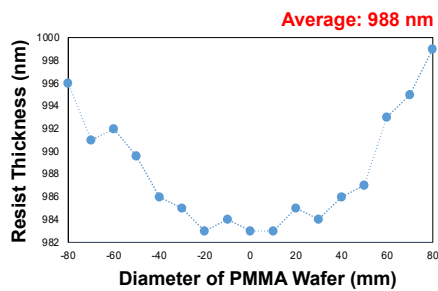


#### (c) Sugar Acrylate Polymer Derivatives

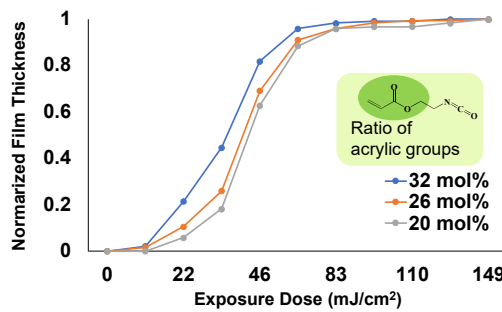


## Results

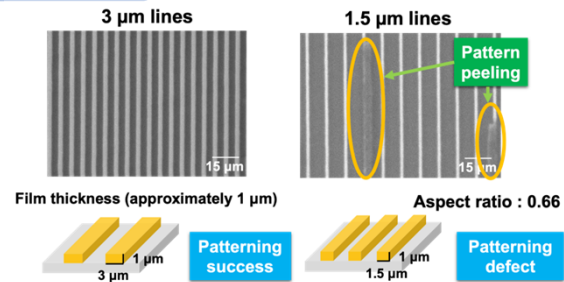
### Film thickness uniformity



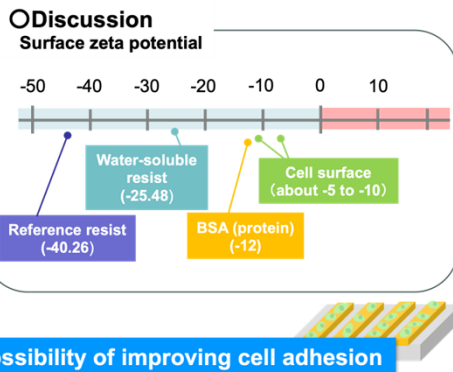
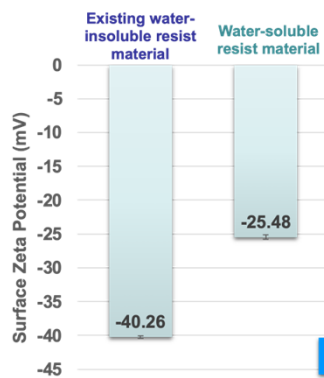
### Exposure Sensitivity



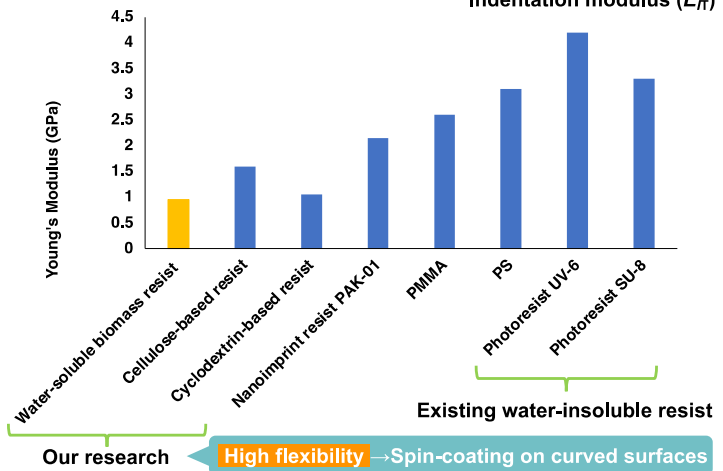
### Patterning



### Surface zeta potential



### Mechanical Properties



## Conclusion

The water-soluble resist material derived from sugar chains had the following characteristics.

- ±8 nm film thickness uniformity
- Excellent exposure sensitivity
- 3 μm line pattern resolution
- Surface zeta potential with good adhesion to cells
- Flexible mechanical strength

