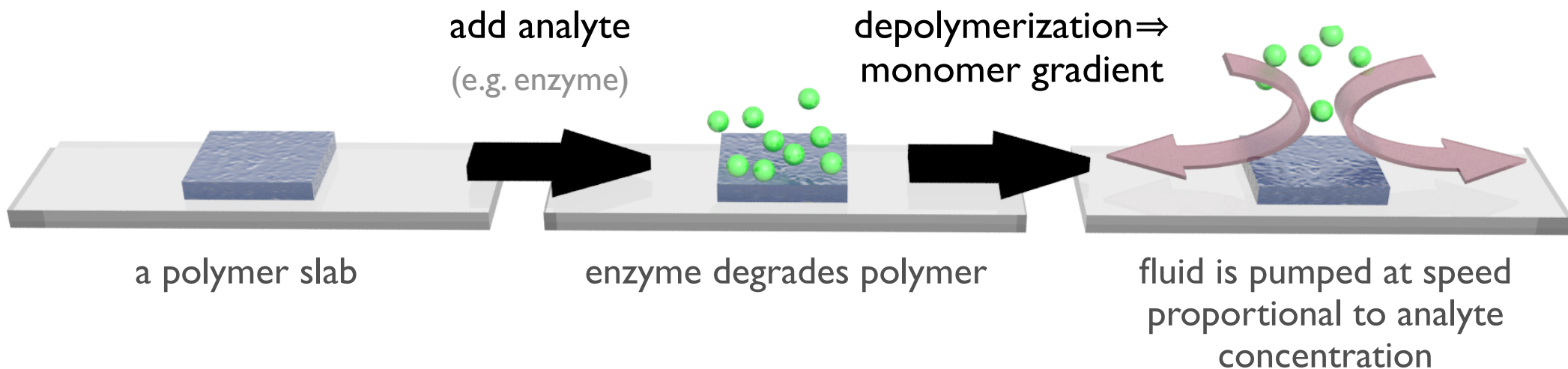


Micropumps powered by analyte-initiated depolymerization



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Insoluble polymer films depolymerize to release soluble monomeric products when exposed to a specific analyte. These depolymerization products create a concentration gradient that pumps fluids and insoluble particles away from the bulk polymer by diffusiophoresis, thereby amplifying the original signal.

These pumps can be designed to respond to a variety of analytes ranging from small molecules to enzymes in the next generation of smart micro/nanoscale devices.