Electronic Supplementary Material (ESI) for Analyst.

Supplementary Information

A dip-stick type biosensor using bioluminescent bacteria encapsulated in color-coded alginate microbeads for detection of water toxicity

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Supplementary contents

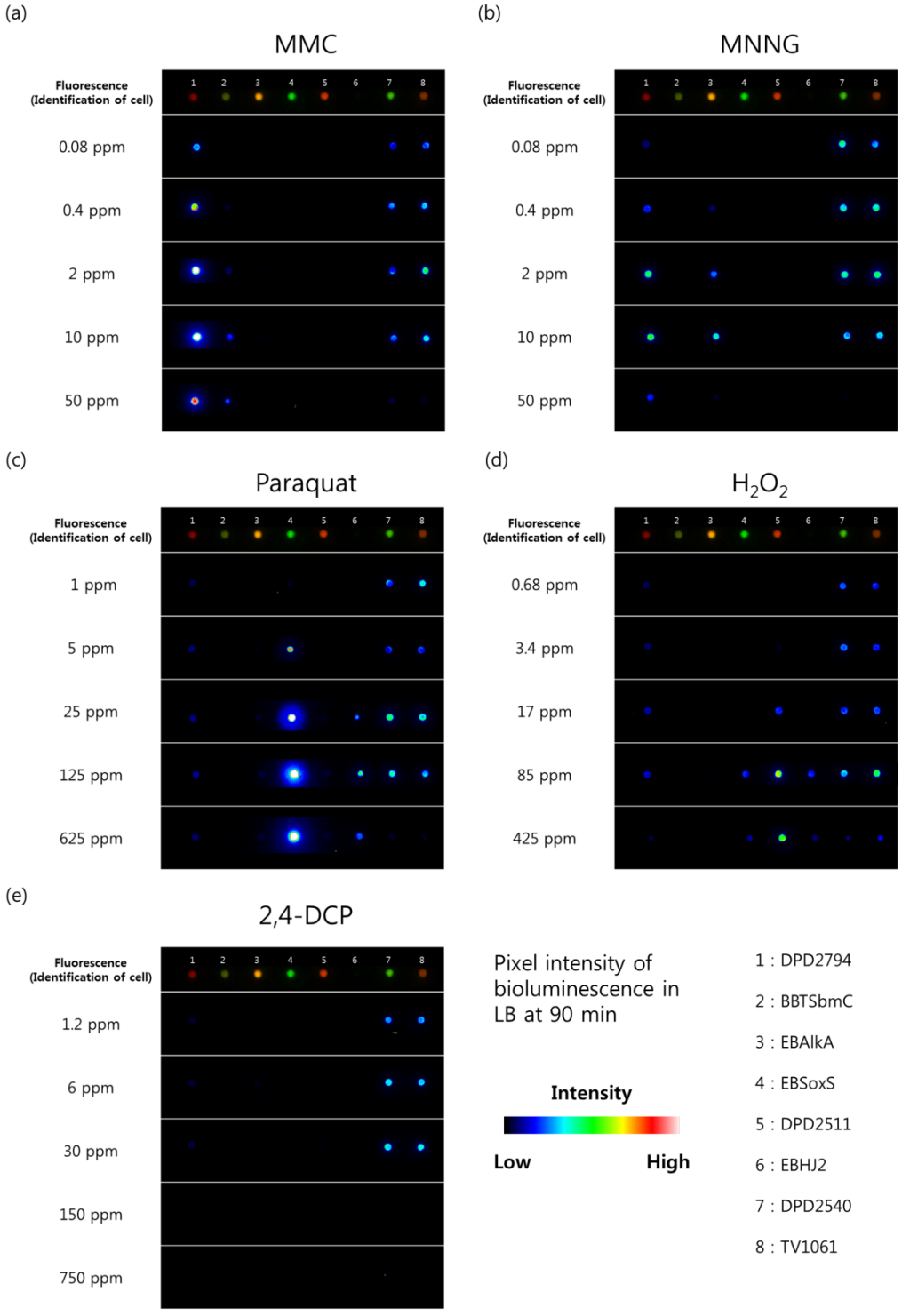

Figure S1. Dose-dependent bioluminescent response induced by 5 different dose of chemical spiked LB medium (a) MMC, (b) MNNG, (c) Paraquat, (d) H_2O_2, and (e) 2,4-DCP

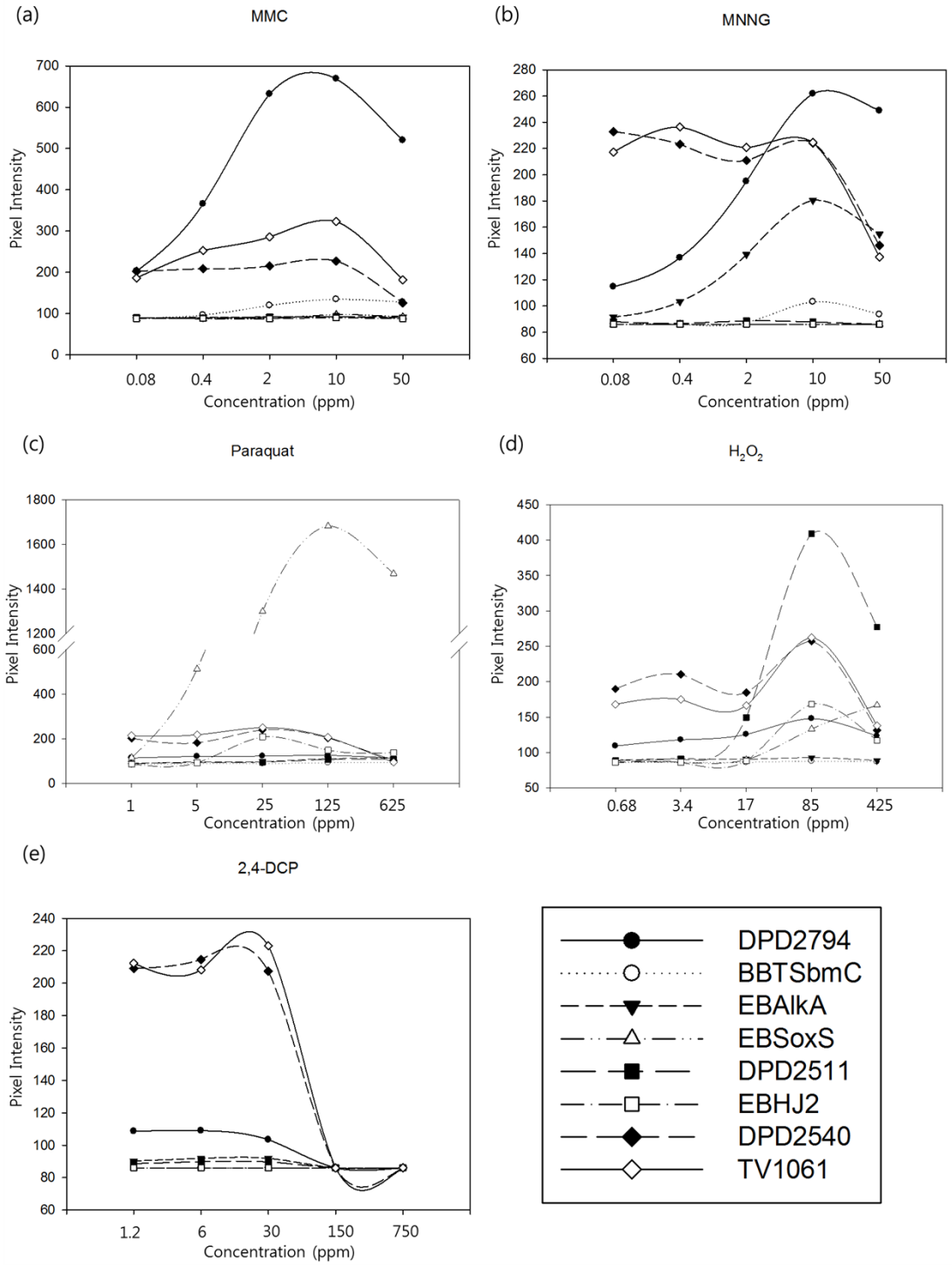

Figure S2. Pixel intensity of dose-dependent response of 8 bacterial bioluminescence induced by (a) MMC, (b) MNNG, (c) Paraquat, (d) H_2O_2 17, and (e) 2,4-DCP 30

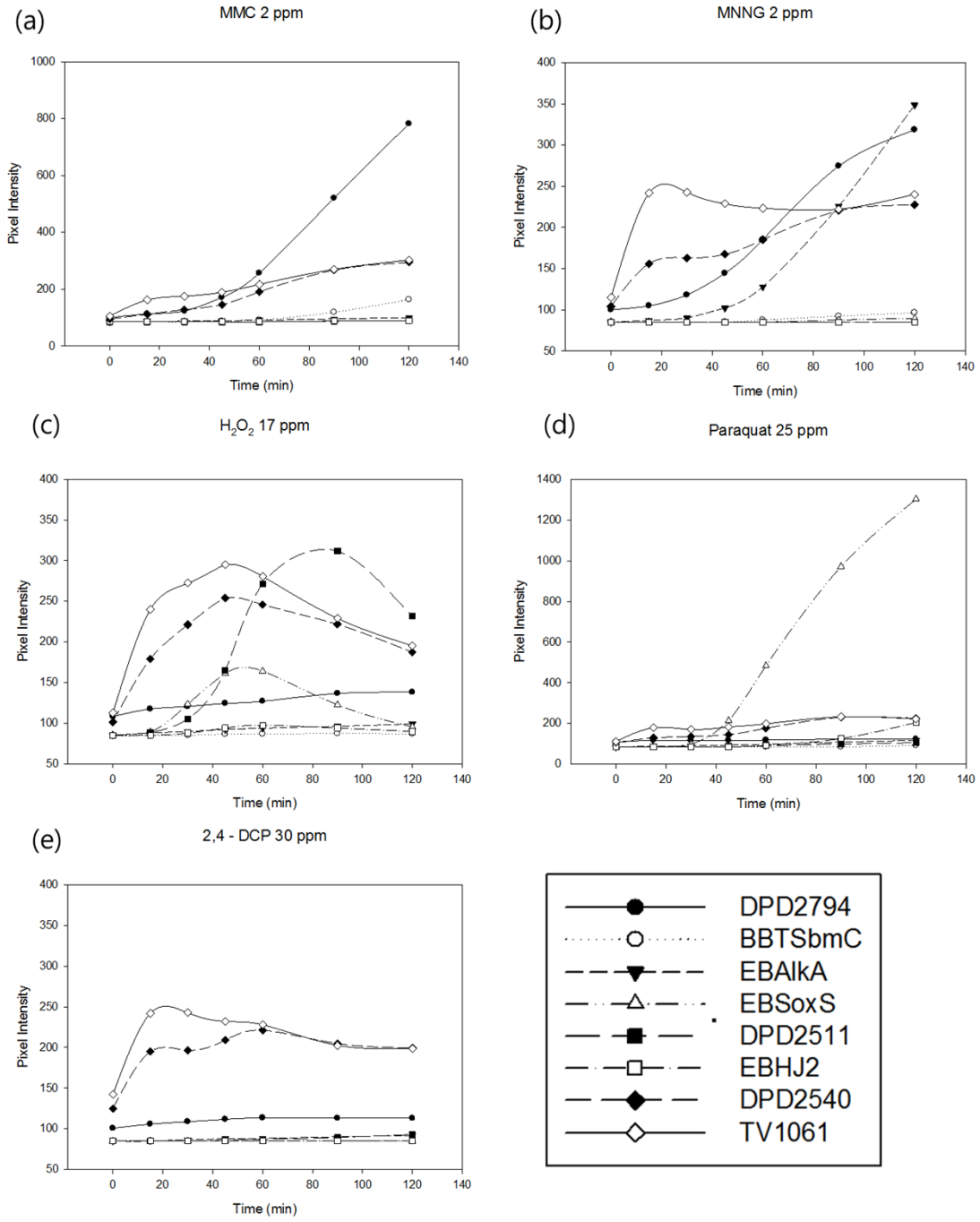

Figure S3. Pixel intensity of 8 bacterial bioluminescence induced by (a) MMC 2ppm, (b) MNNG 2 ppm, (c) Paraquat 25 ppm, (d) H_2O_2 17 ppm and (e) 2,4-DCP 30 ppm.

Table S1. The list of biosensors developed in our group using bioluminescent bacteria and their application along with benefits and demerits.

Sensor type	Application field	Benefit	Demerit	Reference
Multi-channel continuous biosensor	Toxicity monitoring of polluted water	Continuous toxicity monitoring	Fixed sensor on site, and not portable sensor	1
Gas biosensor	Toxicity monitoring of gas	Highly stable, portable and disposable biosensor	Difficult to discriminate the species of gas	2
Soil biosensor	Toxicity monitoring of polycyclic aromatic hydrocarbons (PAHs) contaminated soil	Highly stable, portable and disposable biosensor	Difficult to discriminate the species of chemicals contaminated	3
Cell array biosensors	High throughput toxicity monitoring and screening for polluted water, food extracts or drug candidates	Fast fabrication of sensor and reduction of cost, time and labor to prepare sensor	One-time diagnosis, not continuous	4, 5
Dip-stick biosensor	Toxicity diagnosis of water on site	Portable and easy to handle for test	One-time diagnosis, not continuous	This study

References

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