Supporting Information for

Tailor-made high-performance reverse osmosis membranes by surface fixation of hydrophilic macromolecules for wastewater treatment

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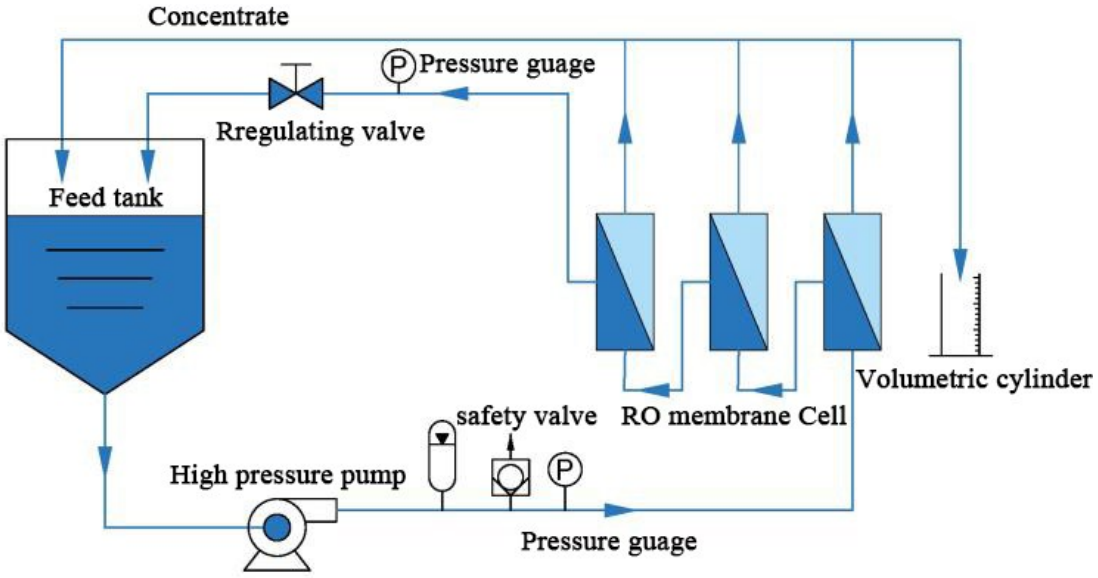

Fig. S1. Schematic diagram of the cross-flow filtration setup.

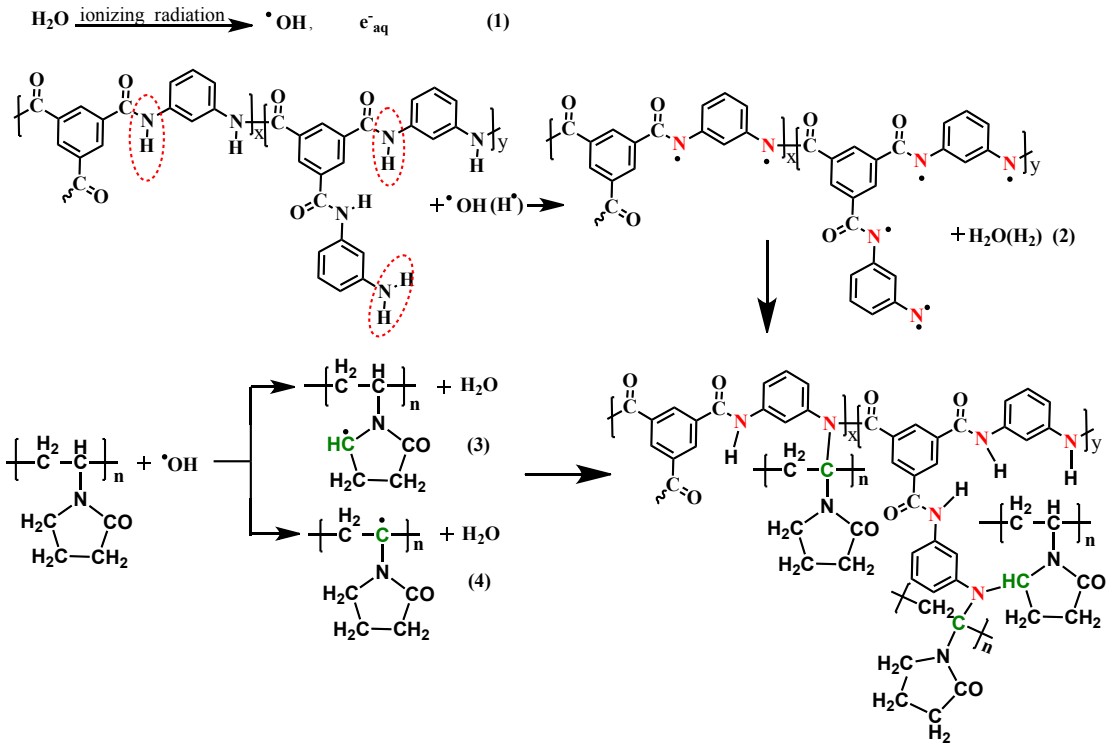

Fig. S2. Mechanism of PVP grafted PA layer RO membrane

Table S1

Contact angles, surface energy, and adhesion work of virgin and PA-g-PVP RO membranes.

Membrane	Contact angle(°)[a]		Surface energy ($mJ\ m^{-2}$)	Adhesion work ($mN\ m^{-1}$)
	Water	Glycol		
TFC RO	52.4	20.7	53.14	118.05
PVP-58000-0%	58.6	22.4	49.93	126.97
PVP-58000-1%	28.1	9.8	66.37	139.02
PVP-58000-2%	24.4	8.6	71.81	144.59
PVP-58000-5%	29.3	11.2	64.96	136.48
PVP-24000-2%	33.5	12.5	62.16	132.66
PVP-8000-2%	36.9	14.6	60.57	130.36

[a] The error in contact angle measurement is no more than 0.5°.

Table S2

Antifouling indexes (FRR, DRir, DRr and FDR) of the virgin and PA-g-PVP RO membranes during BSA fouling.

Antifouling index (%)	One cycle		Two cycles		Three cycles	
	TFC RO	PA-g-PVP RO	TFC RO	PA-g-PVP RO	TFC RO	PA-g-PVP RO
FDR	32.2	22.1	36.8	24.7	40.7	26.0
DRir	11.1	2.6	26.8	5.0	35.2	6.6
DRr	17.1	18.5	10.0	19.7	5.5	19.5
FRR	88.9	97.4	73.2	95.0	64.8	93.4