Electronic Supplementary Material (ESI) for Dalton Transactions.

One-pot Synthesis of Mesoporous Pallaium/C Nanodendrites as High-performance Oxygen Reduction Eletrocatalysts through a Facile Dual Surface Protecting Agent-Assisted Strategy

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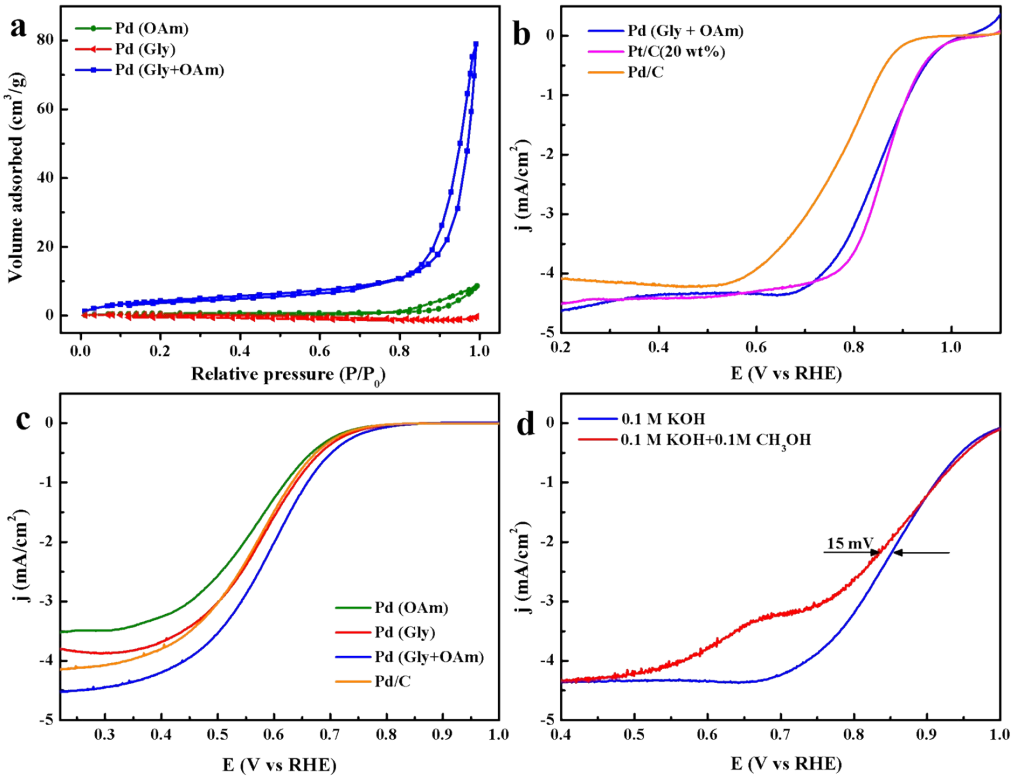

Figure S1 (a) Nitrogen adsorption-desorption isotherms of the as-synthesized Pd catalysts at 77 K; (b) ORR polarization curves in 0.1 M O_2-saturated KOH of the as-synthesized Pd/C nanodendrites and commercial Pt/C and Pd/C catalysts; (c) ORR polarization curves in 0.5 M O_2-saturated H_2SO_4 of the as-synthesized Pd catalysts and commercial Pd/C; (d) ORR polarization curves of mesoporous Pd nanodendrites in 0.1 M KOH and the mixed electrolyte containing 0.1 M KOH and 0.1 M CH_3OH.

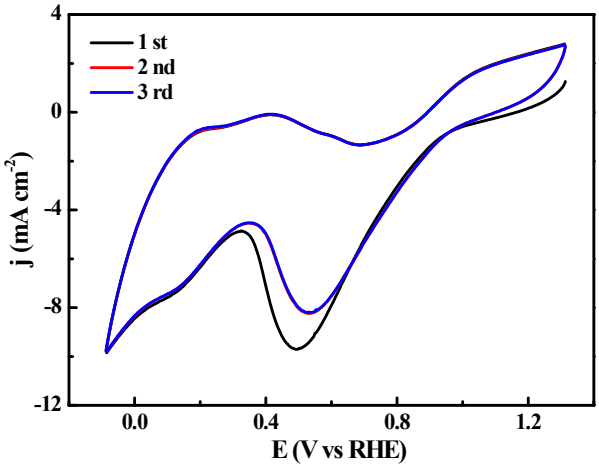

Figure S2 CV curves of the obtained the as-synthesized mesoporous Pd/C nanodendrites.

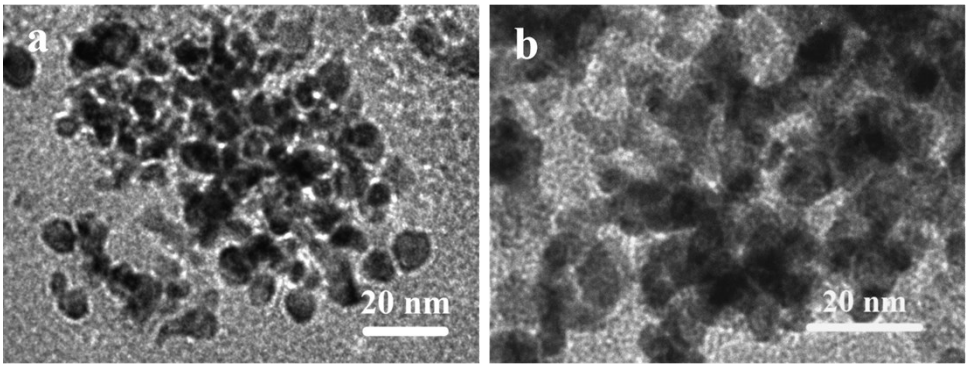

Figure S3 TEM images of the as-synthesized Pd/C nanodendrites after 24 h ORR test.

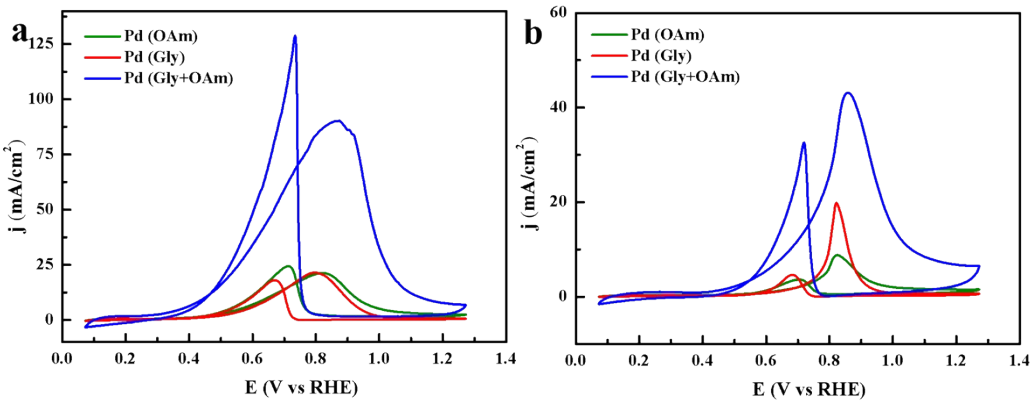

Figure S4 (a) EOR performance in N_2-saturated 1 M KOH and 1 M C_2H_5OH and (b) MOR performance in N_2-saturated 1 M KOH and 1 M CH_3OH of the as-synthesized Pd catalysts at the rate of 0.05 V/s.

Table S1 Comparison of the pore structural parameters of the as-synthesized Pd catalysts.

Catalyst	Pd (OAm)	Pd (Gly)	Pd (Gly + OAm)
BET surface area (m^2/g)	2.78	1.02	17.21
Pore volume (cm^3/g)	\	\	0.122

Table S2 The ORR activity comparison of the Pd/C nanodendrites and the reported Pd nanostructures.

Catalyst	**E_{onset} (V vs RHE)**	**$E_{1/2}$ (V vs RHE)**	**References**
Pd porous nanosheets	~	0.837	*Appl. Catal. B Environ.* 2019, **243**, 86-93
Multipod Pd	0.643	~	*ACS Sustain. Chem. Eng.* 2020, **8**, 9217-9225
Pd-PDA-coated CNFs	0.84	0.73	*J. Mater. Chem. A* 2019**, 7**, 7396-7405
PdNC-Pt	0.87	0.78	*Electrochim. Acta* 2020, **340**, 135840
18Pd-OMC-900	0.963	0.872	*Electrochim. Acta* 2016, **191**, 355-363
Pd nanodendrites	0.975	0.851	this work
$PdH_{0.33}$ NDs	~	0.911	*Electrochem. Commun.* 2019, **102**, 67-71
PdBP MSs	1.01	0.92	*ACS Nano* 2019, **13**, 12052-12061
Pd metallene/C	1.02	0.90	*Angew. Chem. Int. Ed.* 2021, **60**, 10.1002/anie.202101019