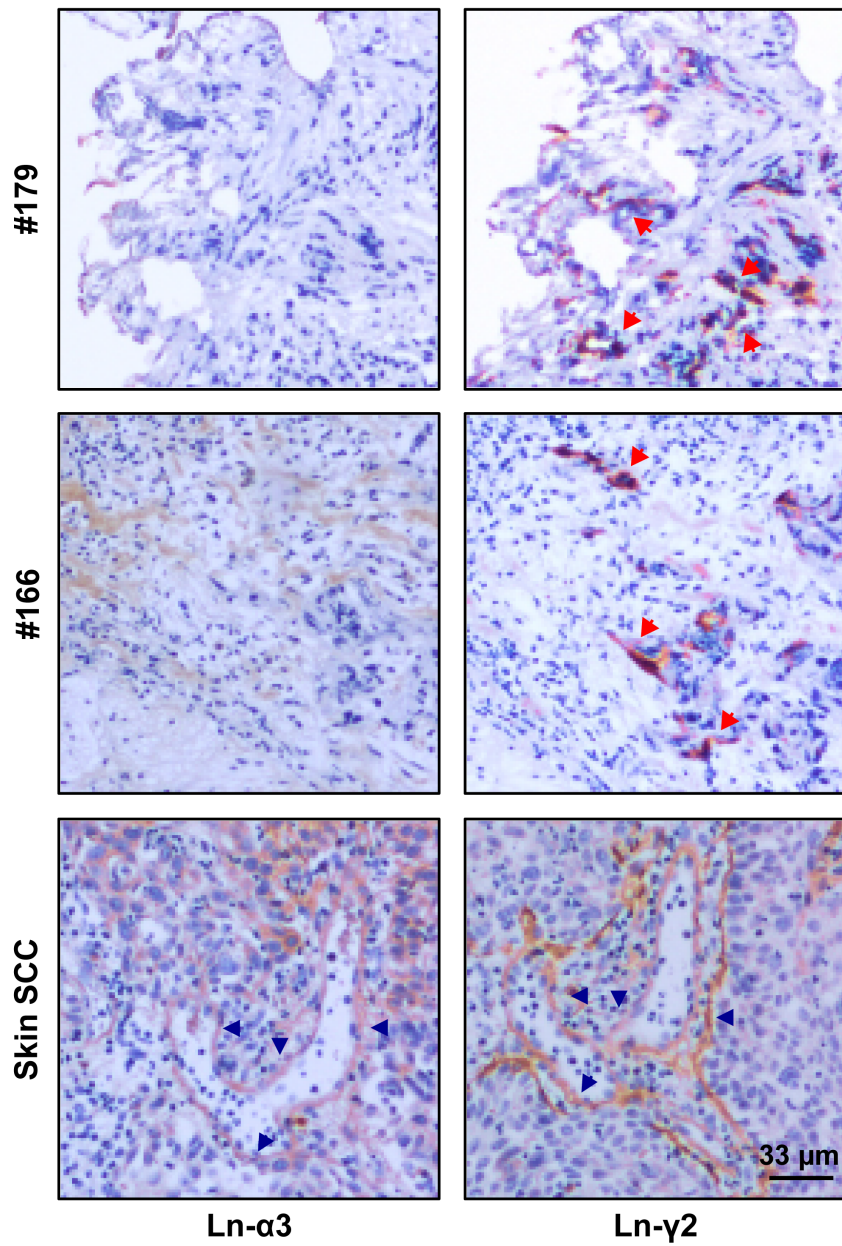
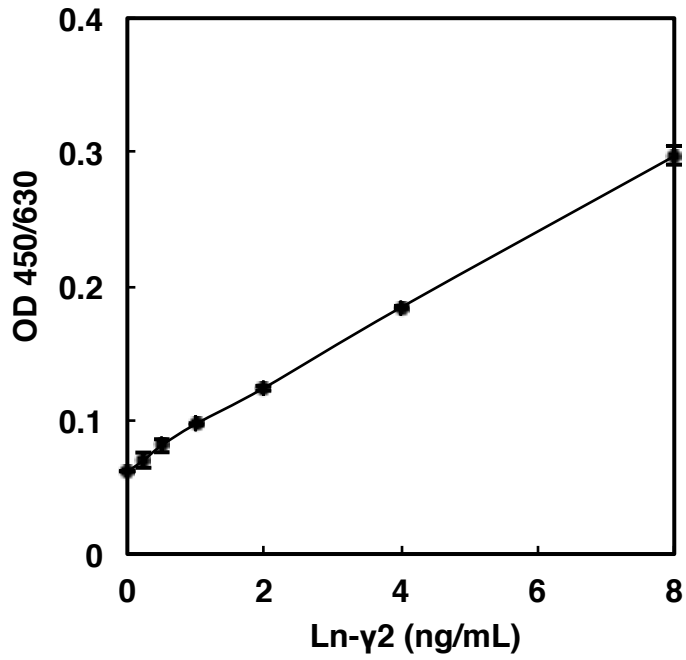


**Supporting Information****Fig. S1. Detection of Ln- $\alpha$ 3 or - $\gamma$ 2 chains in UC tissues via immunohistochemistry.**

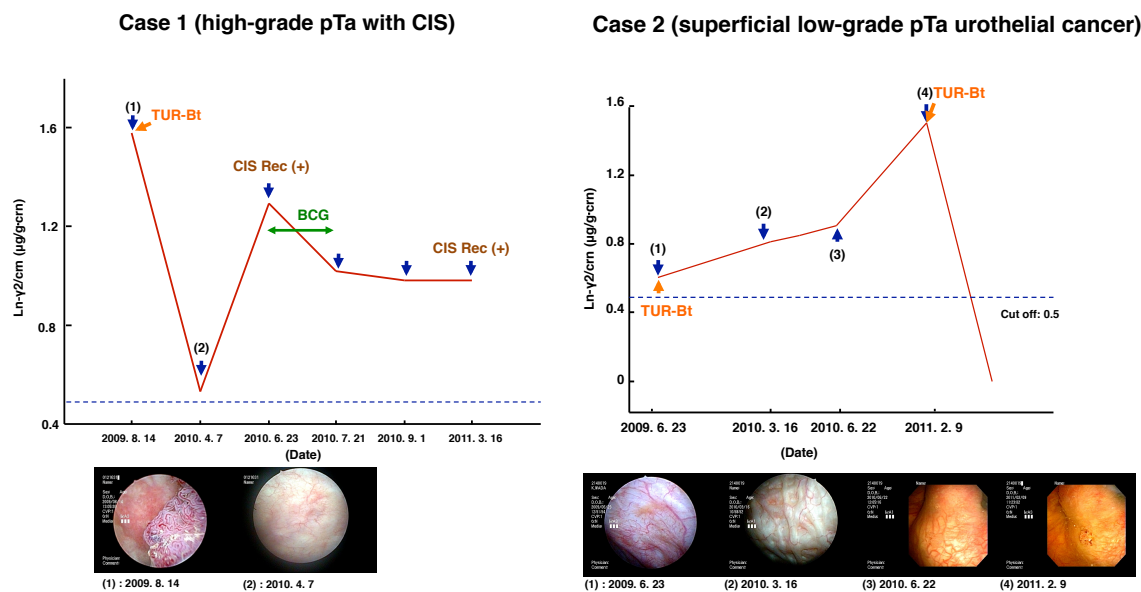
This image is an enlargement of the outline areas in Figure 2A. Bar: 33  $\mu$ m. Red arrowheads indicate UC cells expressing laminin (Ln)- $\gamma$ 2 in the patients 166 and 179 (muscle invasive UC). Black arrowheads indicate basement membranes expressing Ln- $\alpha$ 3 and Ln- $\gamma$ 2 in skin squamous cell carcinoma (skin SCC).

**Fig. S2. Quantitative analysis of Ln- $\gamma$ 2 via a sandwich ELISA.**



Monomeric Ln- $\gamma$ 2 was used for the standard curve (0, 0.25, 0.5, 1, 2, 4, and 8 ng/mL), and was detected using the D4B5 antibody and horseradish peroxidase-linked IgG. OD: optical density.

Fig. S3. Two cases with measured Ln- $\gamma$ 2/crn levels during the postoperative course highlight the



relationship between urothelial cancer (UC) recurrence and Ln- $\gamma$ 2/crn values.

**(A) Case 1:** Cystoscopy revealed papillary bladder cancer and CIS at 1.6  $\mu\text{g/g}\cdot\text{crn}$  of Ln- $\gamma$ 2/crn (1). After TUR-BT was performed, Ln- $\gamma$ 2/crn decreased to 0.5  $\mu\text{g/g}\cdot\text{crn}$ , although cystoscopy revealed recurrent UC at 7 months (2). At 9 months, CIS was observed and intravesical Bacillus Calmette–Guerin (BCG) immunotherapy was performed. Although Ln- $\gamma$ 2/crn decreased to 1.0  $\mu\text{g/g}\cdot\text{crn}$ , it did not decrease below the cut-off value of 0.5  $\mu\text{g/g}\cdot\text{crn}$ . Cystoscopy revealed no recurrent UC, although urine cytology revealed possible UC at 9 months after the second treatment, and recurrent UC was detected in the renal pelvis.

**(B) Case 2:** Bladder cancer was observed via cystoscopy at 0.6  $\mu\text{g/g}\cdot\text{crn}$  of Ln- $\gamma$ 2/crn (1), and transurethral resection of bladder cancer (TUR-Bt) was performed for the UC. Although no recurrent UC was observed at 9 months after the TUR-Bt, the Ln- $\gamma$ 2/crn was elevated to 0.8  $\mu\text{g/g}\cdot\text{crn}$  (2). At 12 months, small recurrent UC was found via cystoscopy, and the Ln- $\gamma$ 2/crn had increased to 0.9  $\mu\text{g/g}\cdot\text{crn}$  (3). At 19 months, the recurrent UC bled and the Ln- $\gamma$ 2/crn was 1.5  $\mu\text{g/g}\cdot\text{crn}$  (4). After TUR-Bt was performed for the recurrent UC, the Ln- $\gamma$ 2/crn decreased to below the cut-off value.

**Table S1. Diagnosis of patients with urological diseases.**

Supplimentary table

No	Diagnosis	Diagnosis_txt
116	No malignancy	Benign Hypertrophy
119	Prostate ca	Prostate ca
120	other ca	Testicular Ca
126	Prostate ca	Pca
127	Prostate ca	Prostate ca
128	Bladder ca	Bladder ca
129	Bladder ca	Bladder ca
131	Prostate ca	Prostate ca
132	Prostate ca	Prostate ca
133	Prostate ca	Prostate ca
134	Prostate ca	Prostate ca
135	No malignancy	Prostatitis
137	Prostate ca	Prostate ca
140	Prostate ca	Prostate ca
141	Renal pelvic ca	Renal pelvic ca
143	Bladder ca	BCa post
144	No malignancy	Benign Hypertrophy
145	Prostate ca	Prostate ca
146	Renal pelvic ca	Renal Pelvic Ca
147	No malignancy	Functioning adrenal adenoma
149	No malignancy	Hemorrhagic renal cyst
150	Bladder ca	Bladder ca
151	Renal ca	Renal ca with von Hippel Lindau disease
152	No malignancy	No disease
153	Prostate ca	Prostate ca
155	Bladder ca	Bladder ca
158	Bladder ca	Bladder ca
160	Bladder ca	Bladder ca
161	Bladder ca	Bladder ca
162	Bladder ca	Bladder ca
163	Renal ca	Renal ca
164	other ca	Testicular Ca
165	Bladder ca	Bladder ca
166	Bladder ca	Bladder ca
167	No malignancy	Benign Hypertrophy
168	No malignancy	Benign Hypertrophy
169	Prostate ca	Prostate ca
170	No malignancy	Prostate ca
171	No malignancy	No disease
172	No malignancy	Ureteric stricture
173	No malignancy	Bladder ca
174	Renal ca	Renal ca
175	No malignancy	Ureteric stricture
176	other ca	Renal pelvic ca with multiple metastases
177	Bladder ca	Bladder ca
179	Bladder ca	Bladder ca
180	Bladder ca	Prostate ca
181	Prostate ca	Prostate ca
182	No malignancy	Prostate ca
184	Bladder ca	Bladder ca
185	Renal ca	Renal ca
186	No malignancy	Pca
188	other ca	Renal ca
190	Bladder ca	Bladder ca
191	No malignancy	post operative bladder ca
192	Prostate ca	Prostate ca
193	Bladder ca	Bladder ca
194	Prostate ca	Prostate ca
195	Prostate ca	Prostate ca
196	Renal ca	Ranal ca