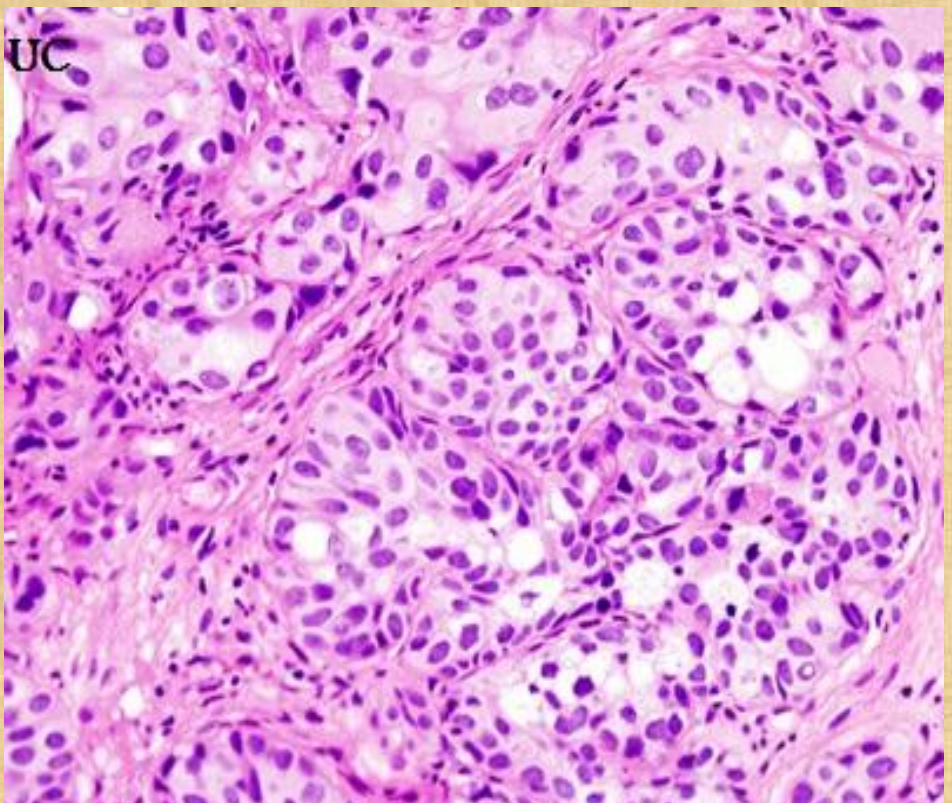
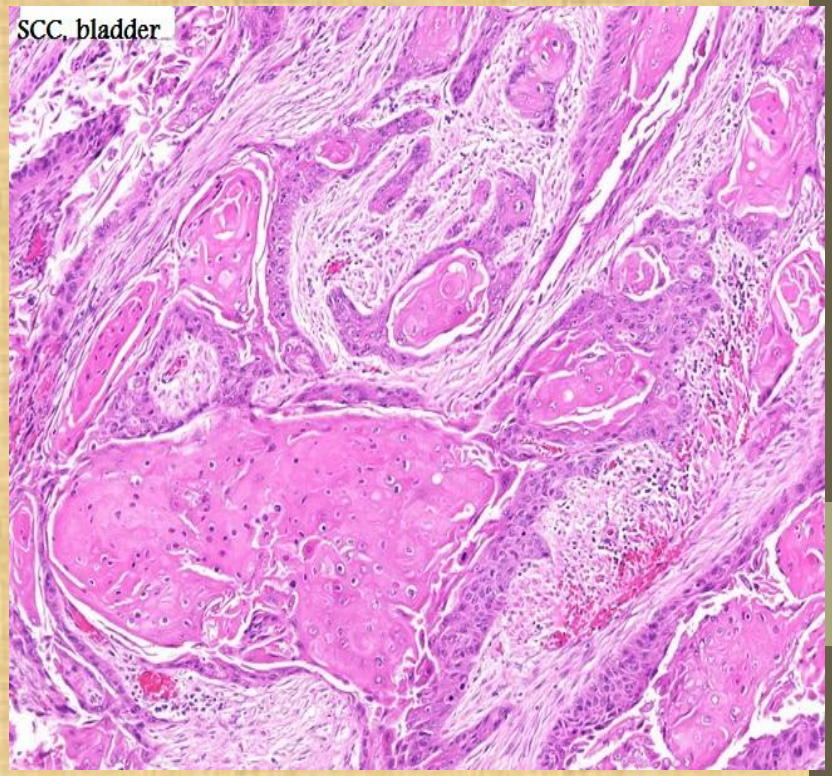
THE USE OF DESMOCOLLIN-2 AND CYTOKERATIN-14 FOR DETECTION OF SQUAMOUS CELL CARCINOMA AND SQUAMOUS DIFFERENTIATION IN UROTHELIAL CARCINOMA





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INTRODUCTION

- **Bladder cancer is still the most common malignant tumor among males in Egypt and some African and Middle East countries.**
- **Urothelial carcinoma with squamous differentiation occurs in up to 40-60% of UC cases. It is often high-grade and high stage tumors that are thought to be associated with a poorer prognosis and response to both chemotherapy and radiotherapy compared to UC without squamous differentiation .**
- **Distinguishing invasive high grade UC from poorly differentiated SCC may be difficult.**

Desmocollin-2

- **Desmocollin-2 (DSC-2), a trans-membrane glycoprotein belonging to the desmosomal cadherin family has been found to be differentially expressed in several types of cancer and to be involved in tumor progression.**

- **A reduction in the expression of DSC-2 has been reported in numerous types of carcinomas including colorectal, pancreatic, gastric, lung and urothelial cancer. It has been suggested that a reduction in the expression of DSC-2 may act as an independent biomarker for reduced survival**

CK-14

- **Cytokeratin can be divided into two types; basic, type II, CK1-CK8 and the acidic, type I, CK9-CK20. Cytokeratin profile tends to remain constant when epithelium undergoes malignant transformation. The main clinical implications is that the study of cytokeratin profile by immunohistochemistry technique is widely used for tumor diagnosis and characterization in surgical pathology**

AIM OF THE WORK

- To investigate Desmocollin-2 (DSC-2) compared to Cytokeratin-14 (CK-14) for detection of squamous cell carcinoma (SCC) and squamous differentiation of urothelial carcinoma (UC) of the urinary bladder.

Materials and Methods

- **The study included 90 cases of radical cystectomy specimens (69 ♂ and 21 ♀) divided into 35 cases SCC, 38 cases UC, 13 cases undifferentiated carcinoma and 4 cases adenocarcinoma. The tissue blocks were examined for the expression of DSC-2 and CK-14 using the immunohistochemical technique.**

RESULTS

- **DSC-2 was expressed in 35.5% of UC, 100% of SCC and 54% of undifferentiated carcinoma, and is correlated with SCC Grade and clinical stage. CK-14 was expressed in 35.5% of UC, 100% of SCC and 69% of undifferentiated carcinoma and its expression is correlated with SCC tumor stage. DSC-2 had a sensitivity of 85.7% and a specificity of 79.2% compared to a sensitivity of 100% and a specificity of 83.3% for CK-14 in detecting SCC and squamous differentiation of UC.**

Table (2): The DSC-2 expression in different histopathological cases.

Histological diagnosis	No	G I	G II	G III	DSC-2 +	DSC-2 ++	DSC-2 +++	No	P value
Non invasive UC	7	-	-	-					
Invasive UC	31	4	-	27	3	6	2	11(35.5%)	0.001
SCC	35	9	12	14	3	13	19	35(100%)	
Undifferentiated C	13	-	-	-	2	-	5	7(53.8%)	
Adenocarcinoma	4	-	-	-	-	-	-		

Table (3): CK14 expression in the study groups

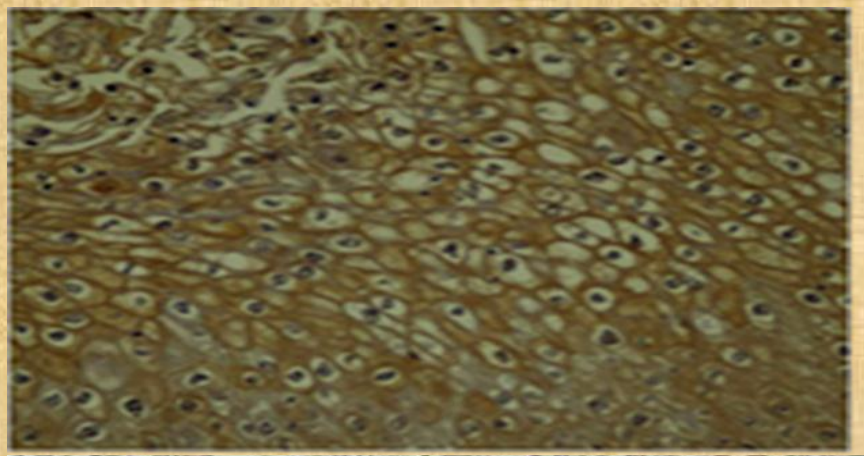
Histopathology	No	CK-14+			G I	GII	GIII	No	P value
		+	++	+++					
Invasive UC	31		5		-	-	5	5(16.1%)	0.001
Non invasive UC	7								
UC & Sq Diff	7		6		-	-	6	6	
SCC	35	1	1	33	9	12	14	35(100%)	
Undifferentiated	13	2	2	5	-	-	9	9(69.2%)	
Adenocarcinoma	4							-	

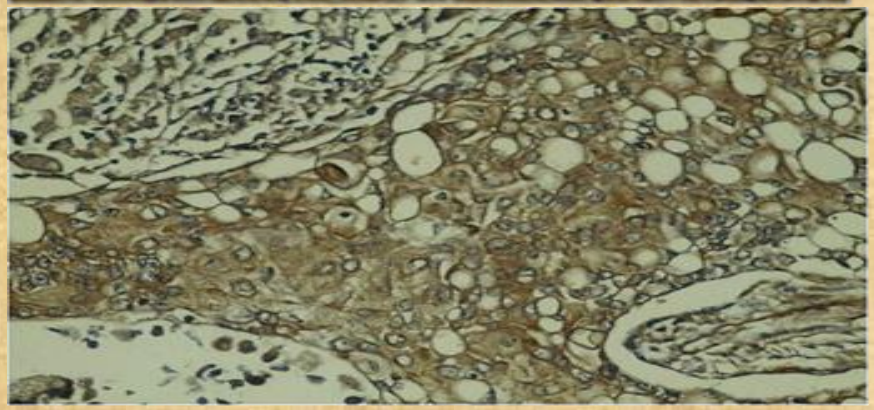
Table (4): Comparison between DSC-2 and CK-14 statistical results

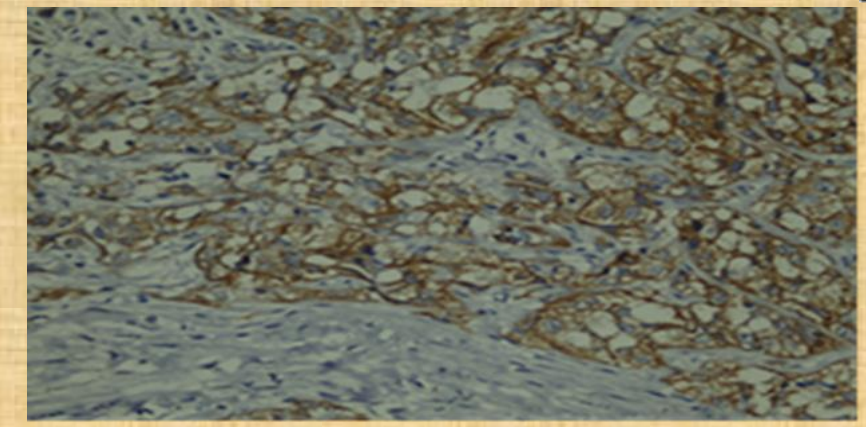
Parameter	DSC-2	CK-14
Sensitivity	85.7%	100%
Specificity	79.2%	83.3%
Positive predictive value	54.5%	63.6%
Negative predictive value	95%	100%

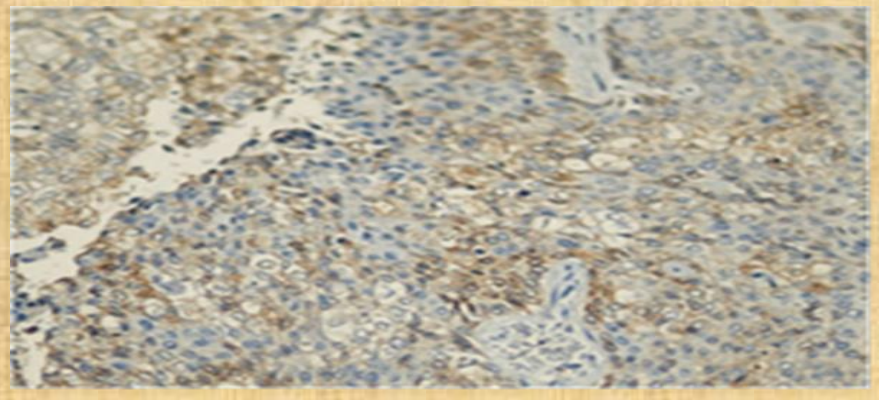
Immunohistochemical expression of DSC-2

- Well differentiated SCC
- Urothelial ca
- Undifferentiated Ca



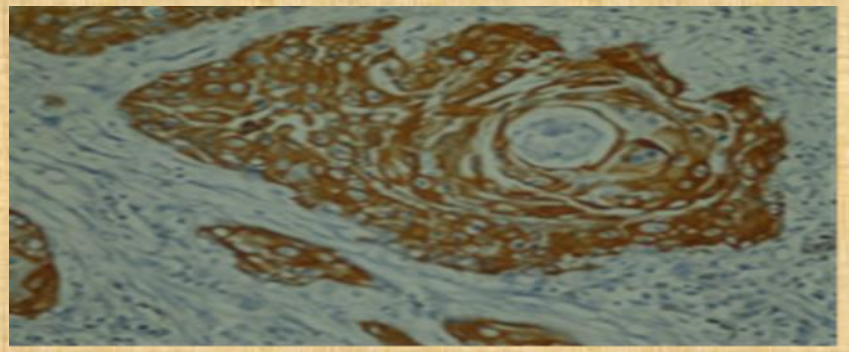


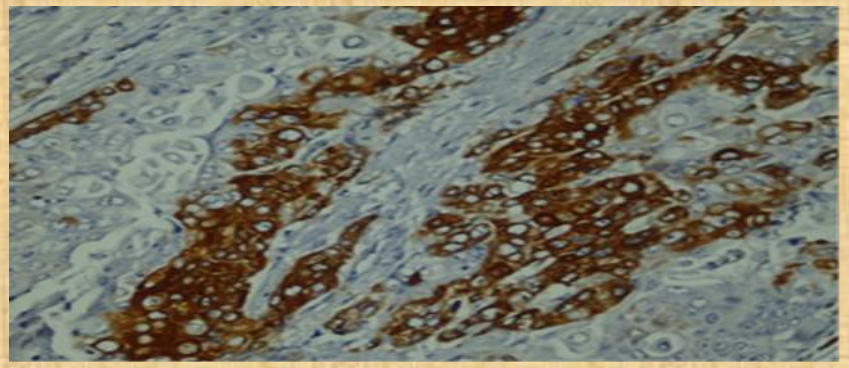


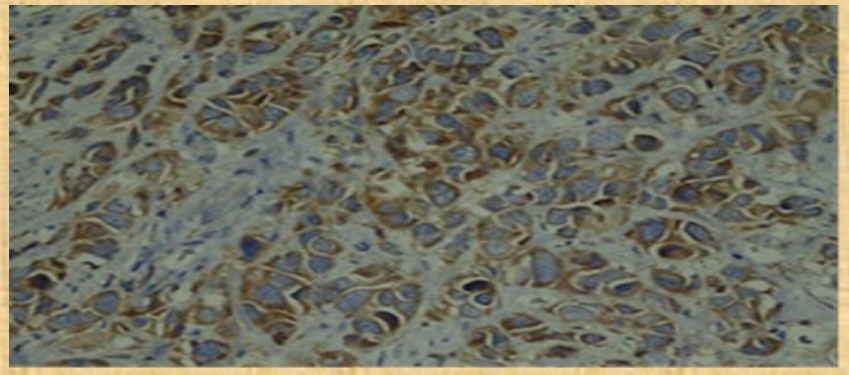


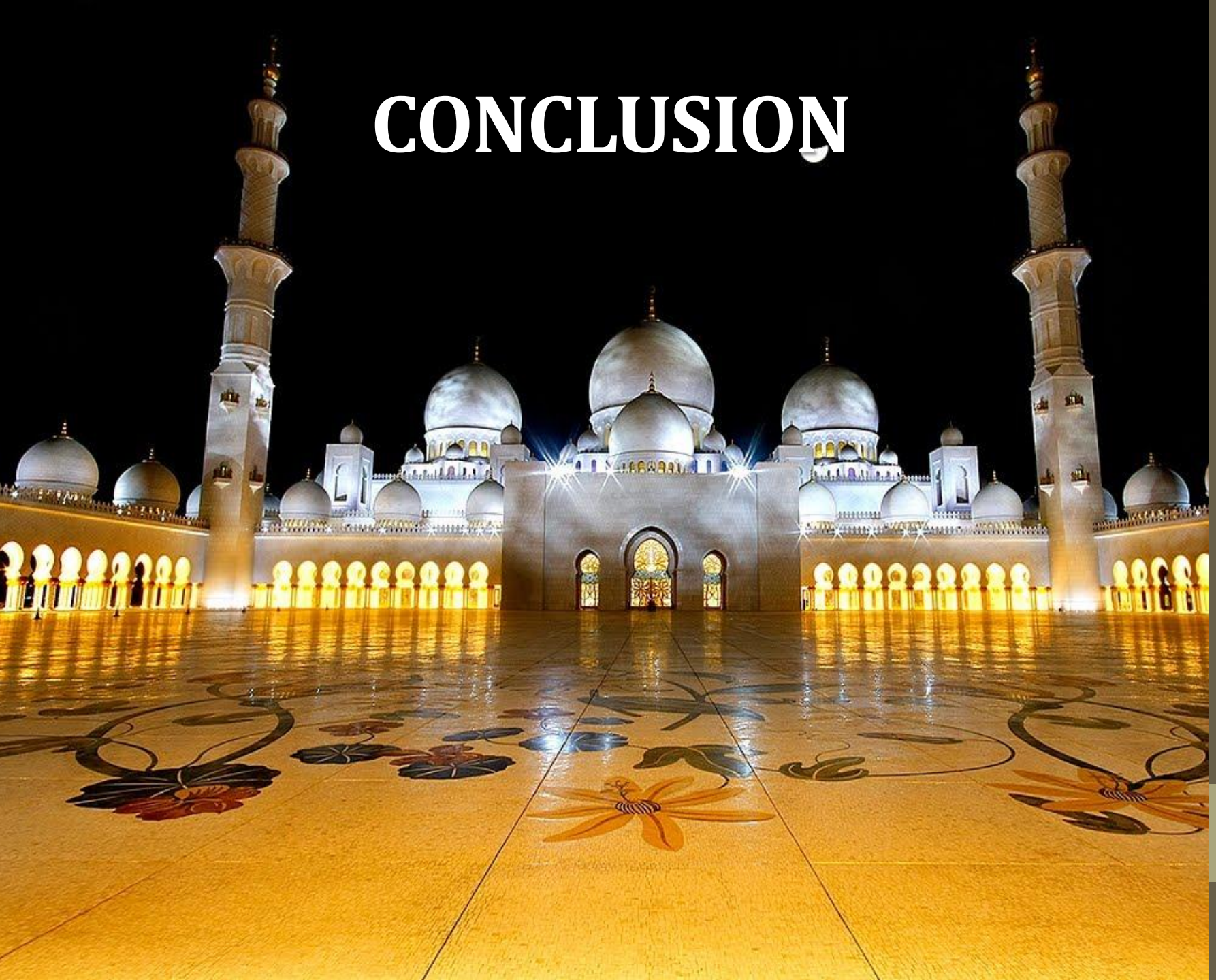
Immunohistochemical expression of CK14

- Well differentiated SCC
- Urothelial Ca
- Undifferentiated Ca








CONCLUSION

- **Desmocollin 2 (DSC-2) is a new immunohistochemical marker indicative of squamous differentiation in urothelial carcinoma. It can be used to separate UC with squamous differentiation from pure UC especially in high grade tumors.**


Thank
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