14507

ITGBL1 Transcriptionally Regulated by Runx2 Facilitates Bone Metastasis of Breast Cancer

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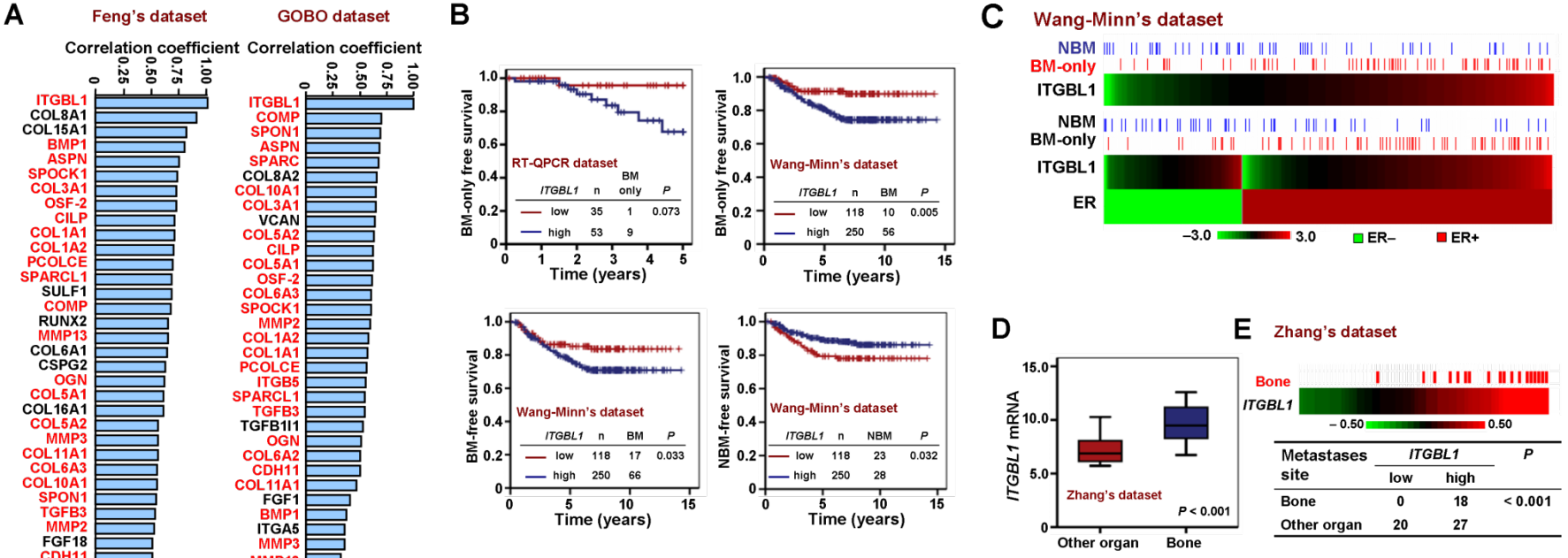
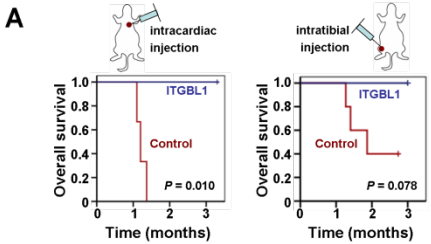
Background

- Bone metastasis
- ITGBL1 (Integrin beta-like 1)
  - Highly expressed in breast cancer tissues
  - Co-expressed with a set of genes related to bone metastasis
  - Over-expressed in bone metastatic MDA-MB-231 subclone cells (Garcia et al.)
  - Role and mechanism in bone metastasis are unclear

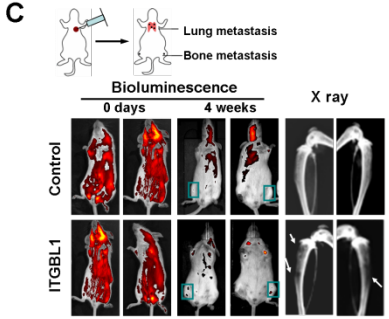
ITGBL1 Facilitates BM of Breast Cancer

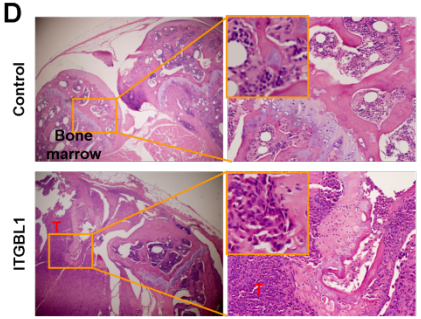


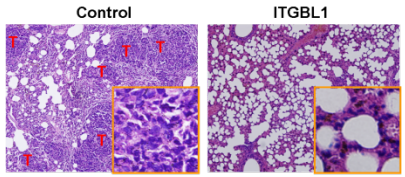
ITGBL1 Contributes Breast Cancer Cells to Seeding BM

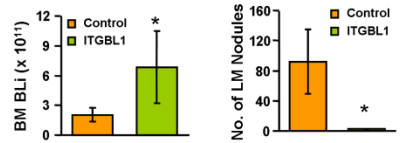


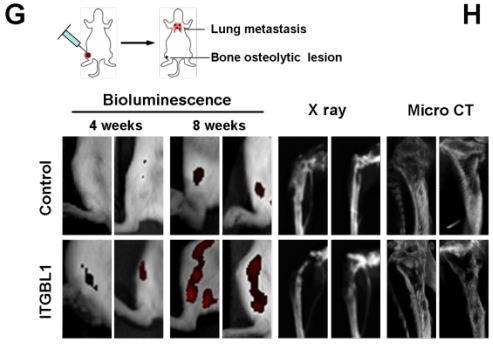
Injection sites	Group	Metastasis site		
		Bone	Lung	Liver
Intracardiac	Control	0/3 (0%)	3/3 (100%)	1/3 (33%)
	ITGBL1	3/4 (75%)	1/4 (25%)	1/4 (25%)
Intratibial	Control	5/5 (100%)	5/5 (100%)	1/5 (20%)
	ITGBL1	4/4 (100%)	0/4 (0%)	0/4 (0%)

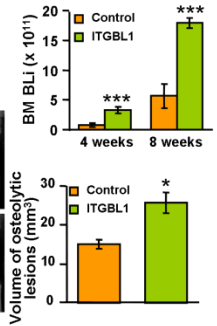


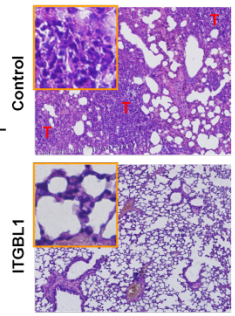




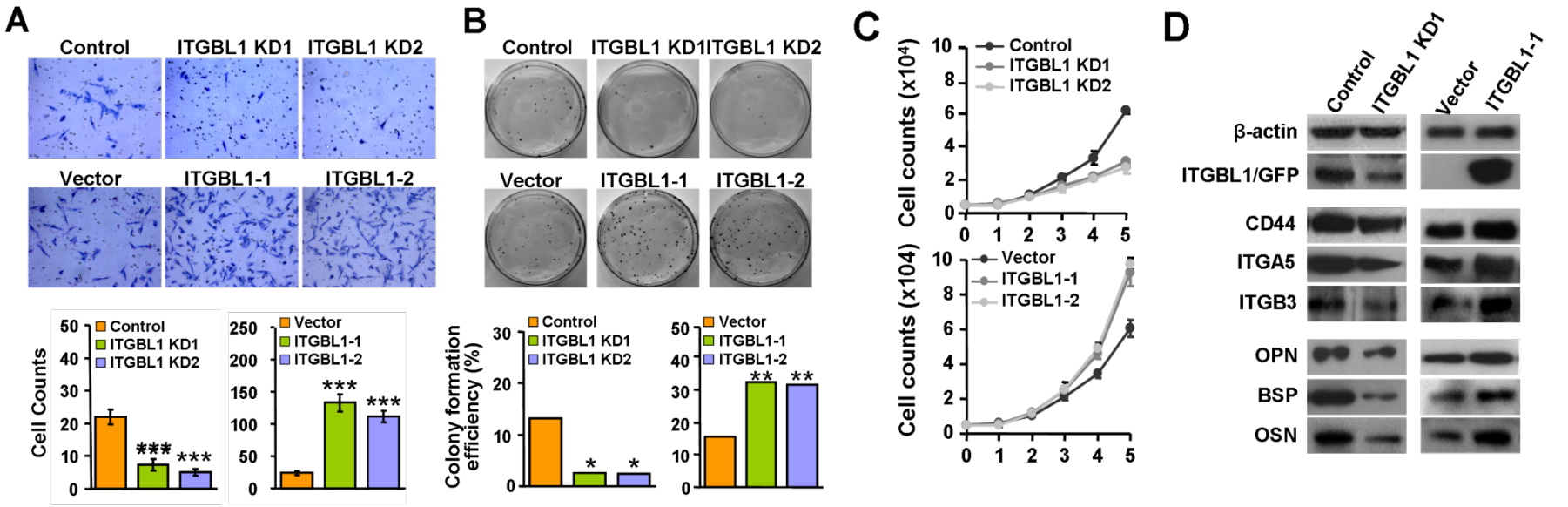




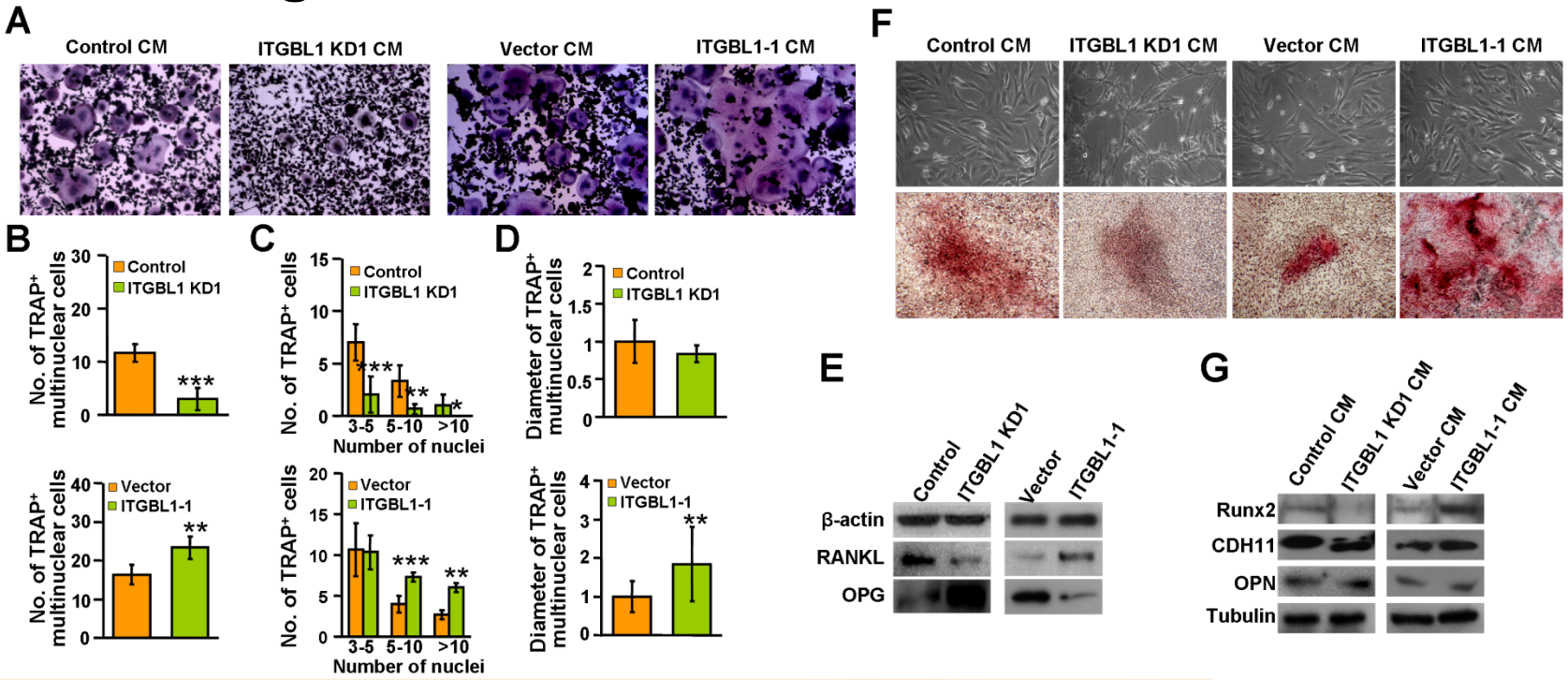




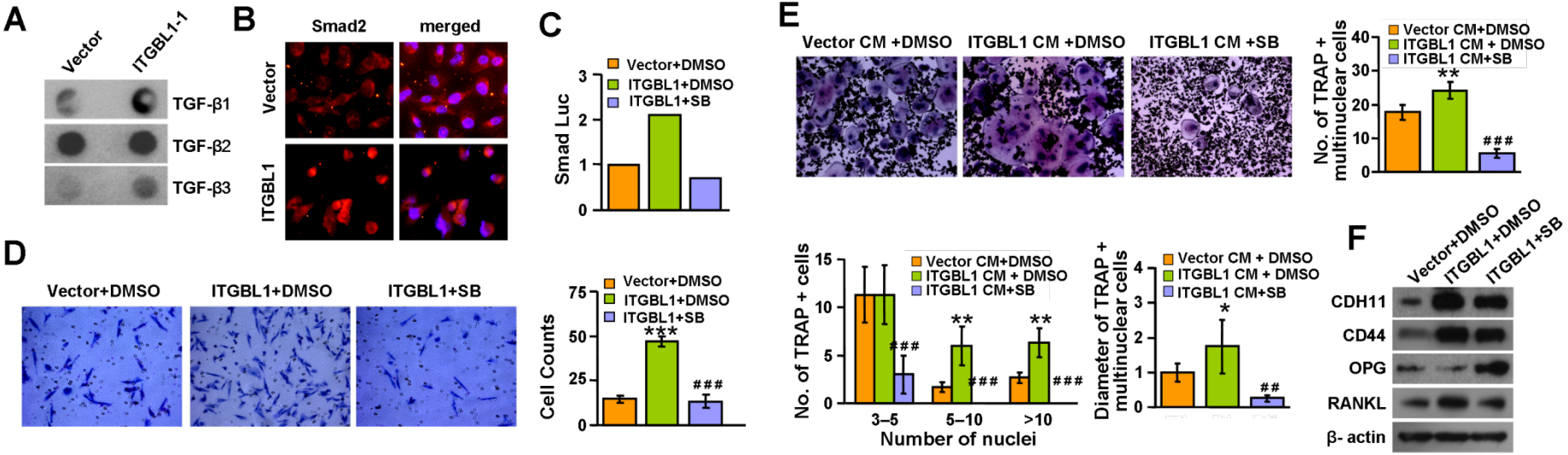
ITGBL1 Endows Cancer Cells Adhesion and Survival Advantage in Bone



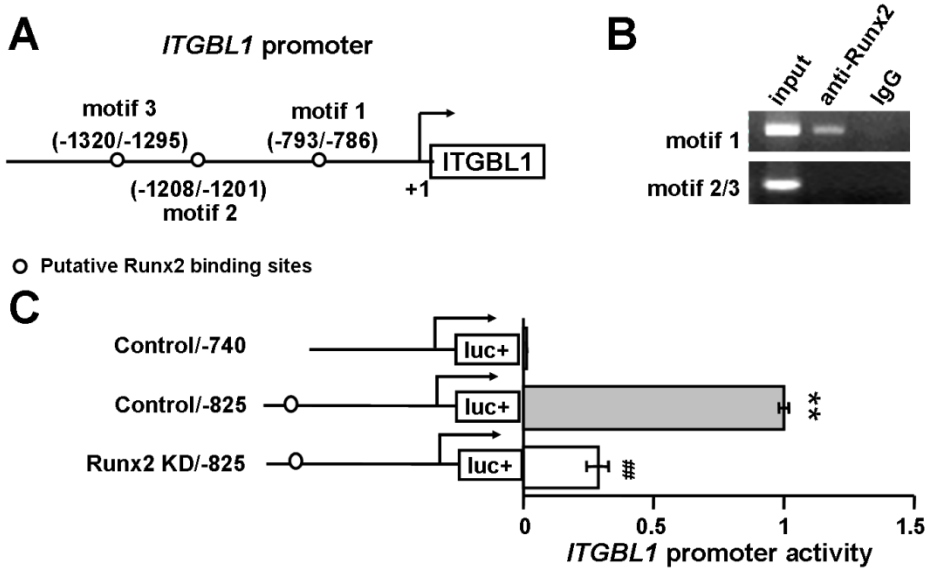
ITGBL1 Enhances the Capability of Cancer Cells in Activating Osteoclasts



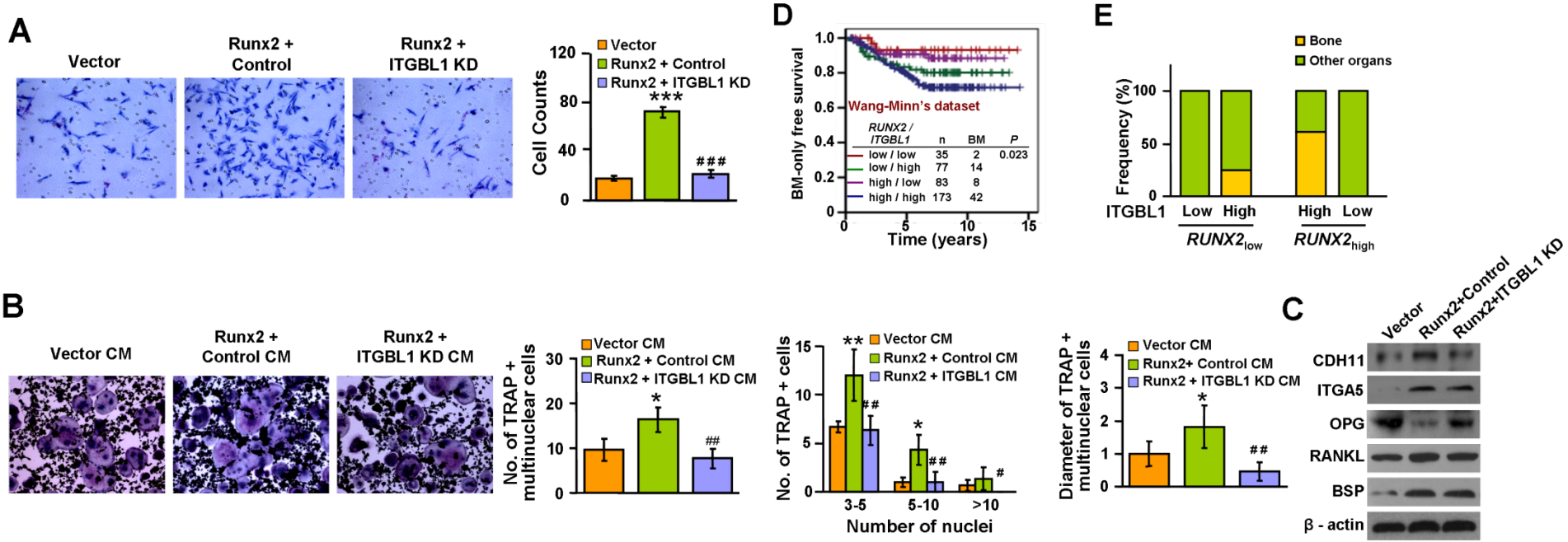
TGF-β Pathway Mediates the Role of ITGBL1 in BM



ITGBL1 is Transcriptionally Regulated by Runx2



ITGBL1 is a Mediator of Runx2 in Promoting BM



Conclusion

- ITGBL1 facilitates bone-specific metastasis of breast cancer
  - Promoting cancer cells recruiting in bone
  - Providing survival advantage in bone microenvirnment
  - Stimulating osteoclasts maturation
- Mechanism of ITGBL1 in bone metastasis
  - Activating TGF-β signaling pathway
- Upstream regulation of ITGBL1 expression
  - Transcriptionally regulated by Runx2
  - A mediator of Runx2-driven bone metastsis

Thank You!