



Induce Biologics

Induce NMP™ vs Infuse (Medtronic)



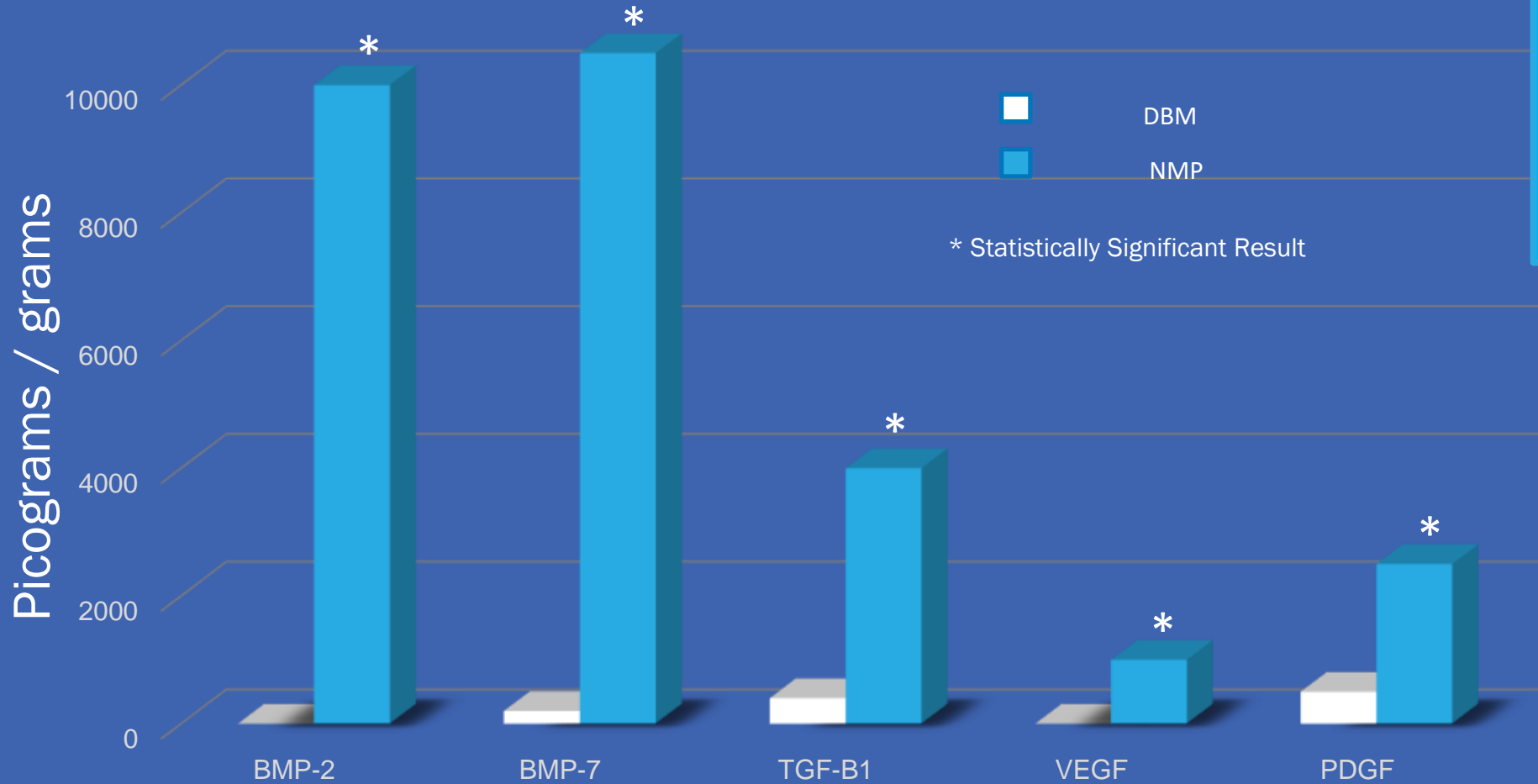
	Induce NMP™	Infuse
Category	Allogeneic graft	Synthetic/Xenogeneic Graft
Bioactivity	Multiple growth factors ¹ : incl. BMP-2, BMP-7, VEGF, TGF-β1, PDGF	Single growth factor: BMP-2
Dosing	Natural: normal physiological dose	Supraphysiological dosing
Bone Induction ²	Extremely effective	Highly effective
Cost (approx. \$/cc)	Moderate (\$575)	Expensive (\$950)
Safety Profile	Low risk	High risk: heterotopic bone formation, swelling, neurological injury
Preparation	3 min. add saline	20 min. add saline and mix then soak collagen sponge
Handling	Multiple formats – adaptable	Single format - limited
FDA	361 designation –many applications (homologous use)	PMA designation – specific indications

- 1. Slide #3
- 2. Slides #4,5,6
- 3. Slide #7



Cortical Fibers
Bioavailability
Commercial ELISA Kit from
R&D Systems:

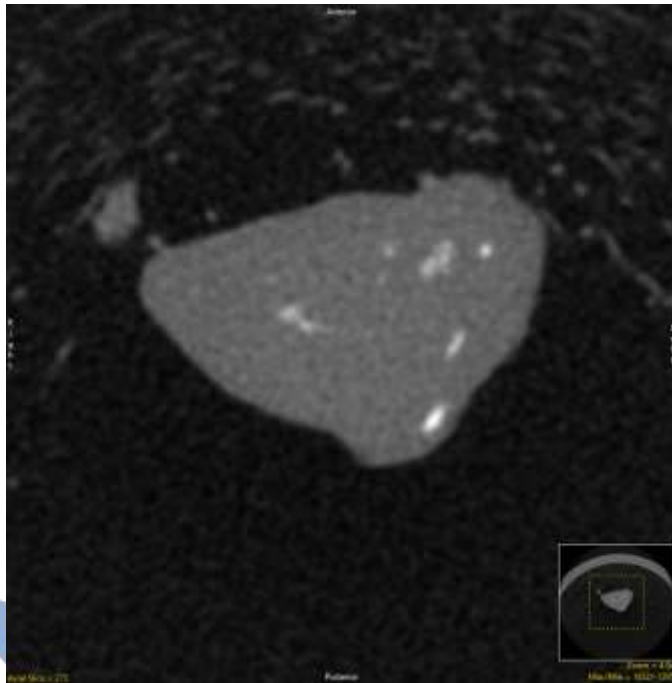
Induce Biologics assesses the bioavailability of BMPs in DBM and NMP by incubating the matrix with 50mM acetic acid and then assaying the extract using a commercial ELISA kit from R&D Systems (Minneapolis, MN).



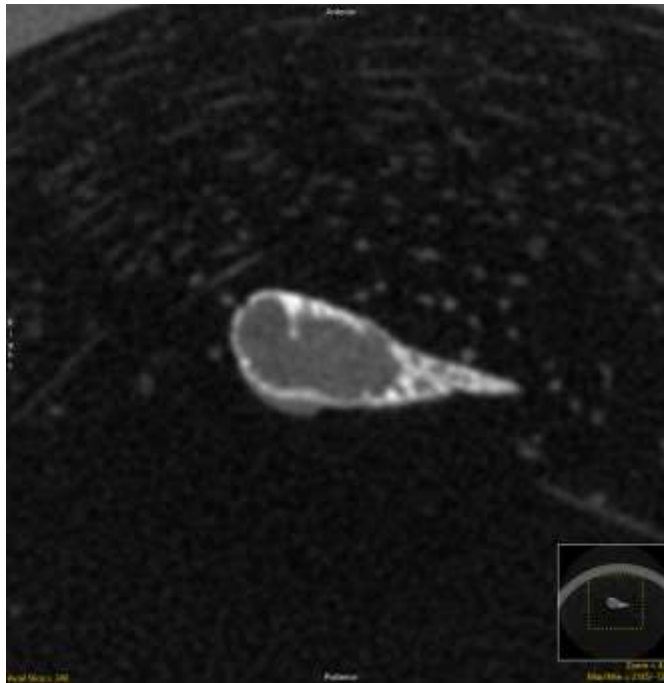
References [4] Pietrzak et al. (2012) The in vitro elution of BMP-7 from demineralized bone matrix. Cell Tissue Bank 13:653-661; [5] Pietrzak & Ali. (2017) The Elution Kinetics of BMP-2, BMP-4, and BMP-7 From a Commercial Human Demineralized Bone Matrix Putty J. Craniofac Surg 28: 2183-2188 [6] Murray et al. (2007) A Statistical Model to Allow the Phasing Out of the Animal Testing of Demineralised Bone Matrix Products. ATLA 35: 405-409.



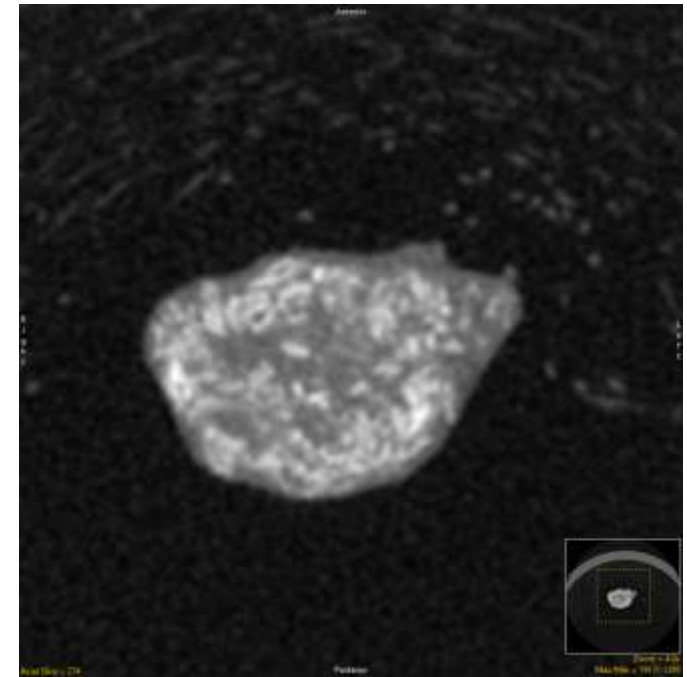
In Vivo Osteoinductivity



DBM



Infuse™



URIST™ NMP

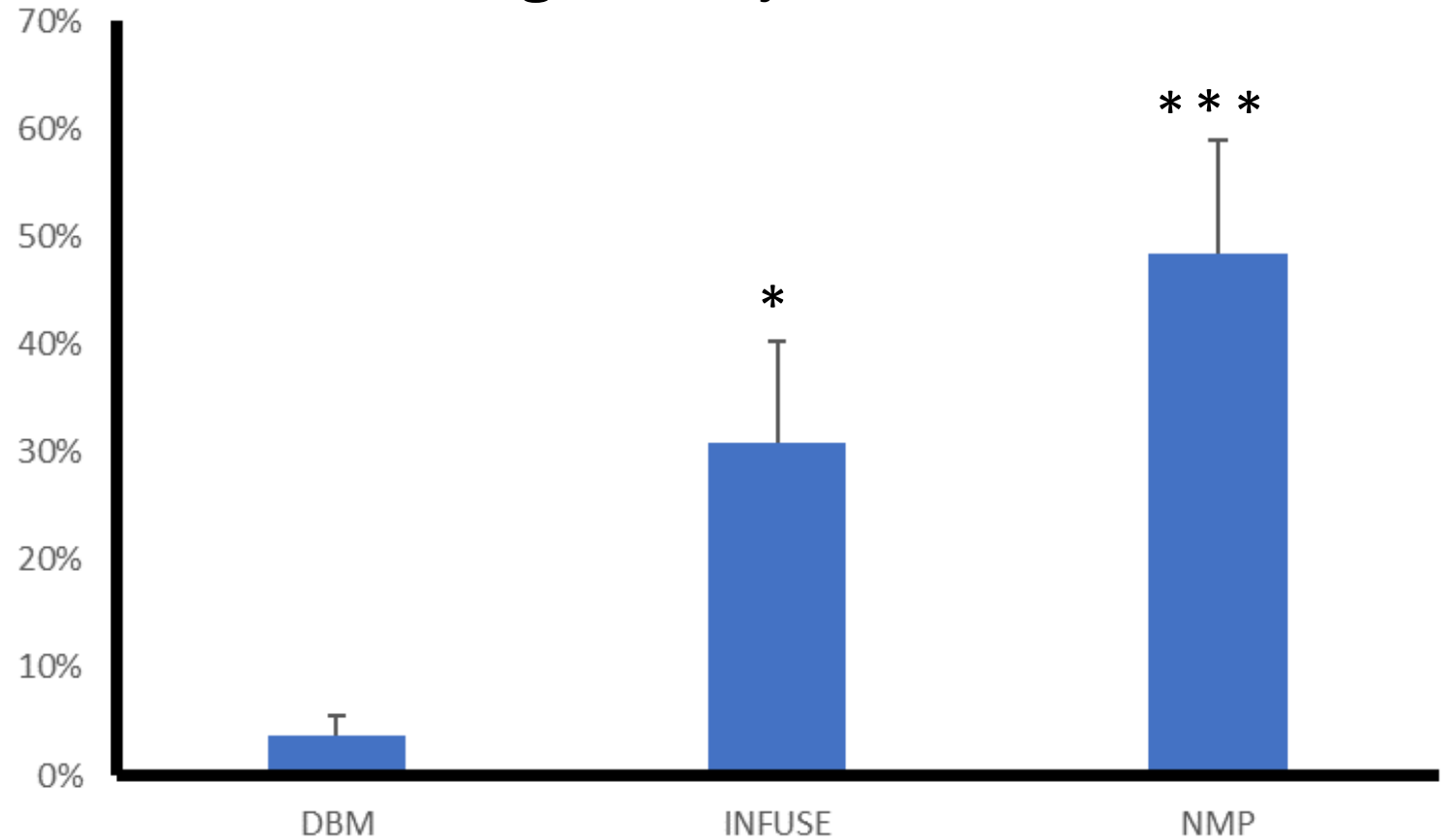
References [1] Clokie et al. (2000) Approaches to Bone Regeneration In Oral and Maxillofacial Surgery. In: Bone Engineering, JE Davie (ed). Toronto: EM Squared Incorporated, (2000). pp 558-575 [2] Peel et al. (2003) In Search of the Ideal Bone Morphogenetic Protein Delivery System: In Vitro Studies on Demineralized Bone Matrix, Purified, and Recombinant Bone Morphogenetic Protein J. Craniofacial Surg 14:284-291 [3] Han et al. (2003) Quantitative and sensitive in vitro assay for osteoinductive activity of demineralized bone matrix. J. Orthopaedic Research 21:648 -654



Quantity of New Bone

Comparison	Unadjusted P	Critical Level
NMP vs. DBM	<0.0001	0.017
INFUSE vs. DBM	<0.0001	0.025
NMP vs. INFUSE	<0.0001	0.05

Significantly more bone

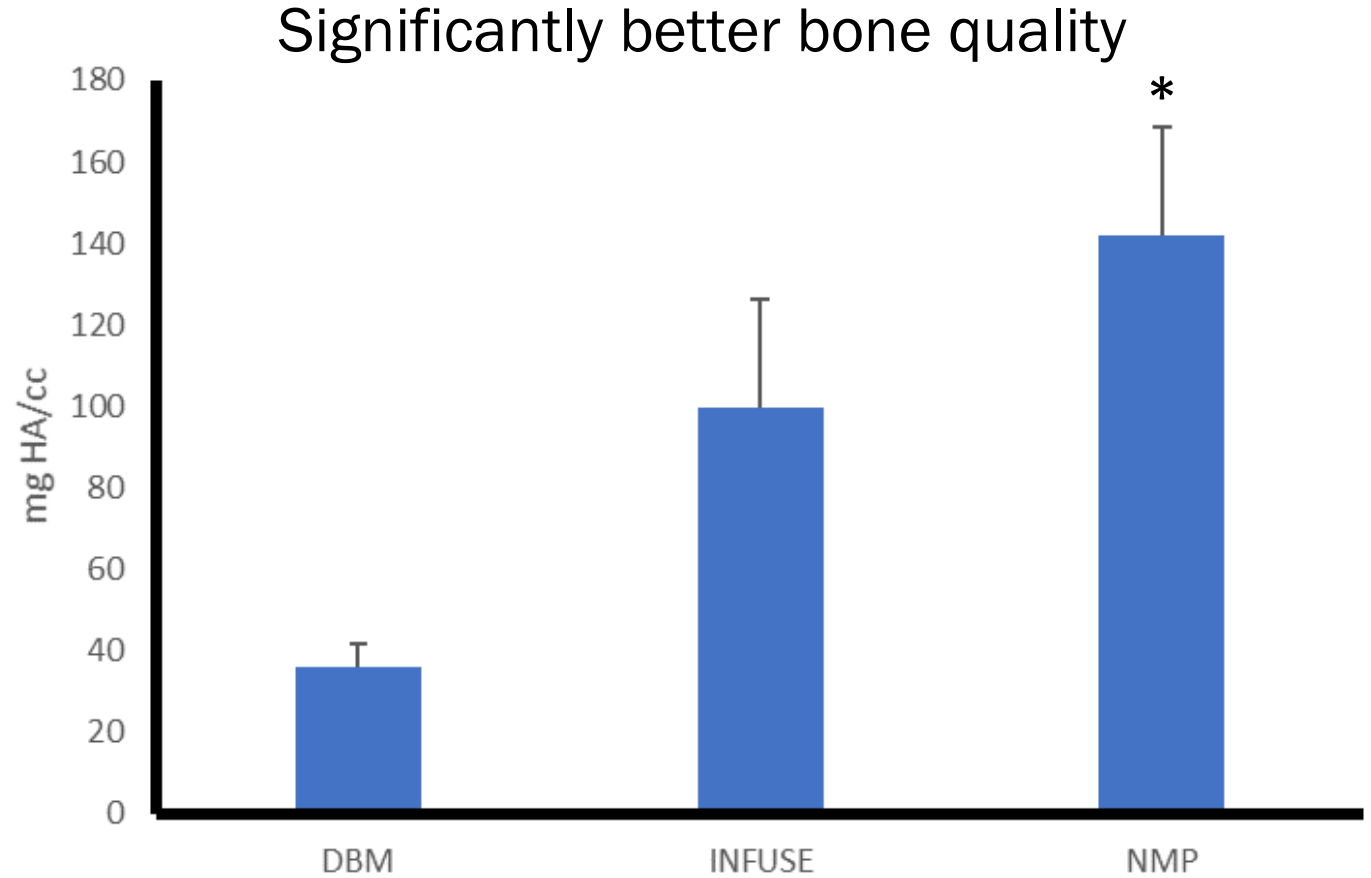


- * Infuse™ produced significantly more bone than DBM
- *** URIST™NMP produced significantly more bone than Infuse™



Quality of New Bone

Comparison	Unadjusted P	Critical Level
NMP vs. DBM	<0.0001	0.017
INFUSE vs. DBM	<0.0001	0.025
NMP vs. INFUSE	<0.0001	0.05



* URIST™NMP produced significantly better bone quality than Infuse™



more bone.

better bone.