



Trusted Clinical Solutions



# Biomaterials

## Selection Criteria





 **ZimVie**

# Regenerative Product Selection Criteria

Indication	Indication Type	Filter question I	Filter question II	Filter question III	Product Recommendation
Extraction Sites	Flapless	Extend of buccal wall loss?	Buccal Wall Intact 	Immediate or delayed Implant placement	<ul style="list-style-type: none"> <li>Consider using Puros Allograft Particulates (Cancellous or Blend), RegenerOss Xenograft or EndoBon Xenograft to minimize buccal wall reduction covered with cross sutured Zimmer Collagen Plug or OsseoGuard PTFE Textured Membrane.<sup>1-17</sup> For delayed implant placement cases ensure proper healing time of at least 3.5 months for Puros Cancellous Particulates and 6 months for Endobon Xenograft and RegenerOss Xenograft.<sup>3, 12, 18-20</sup></li> </ul>
				Preservation without further implant placement	<ul style="list-style-type: none"> <li>Stable bony conditions preferred because of aesthetic reasons.<sup>10</sup> Consider using a volume-stable bone graft substitutes, such as Endobon Xenograft or IngeniOs HA particulates to help to preserve bone volume in the absence of a tooth or implant. Recommend using cross-sutured Zimmer Collagen Plug or OsseoGuard PTFE Textured Membrane over the particulates for graft containment.<sup>4, 8, 20-22</sup></li> </ul>
			25-50% 	Immediate or delayed Implant placement	<ul style="list-style-type: none"> <li>Consider using Puros Allograft Particulates (Blend or Cortical) to rebuild lost hard tissue, as it will turn over for rapid de novo bone formation within 4-6 months healing time.<sup>5, 23-26</sup> If Puros in not available, consider recommending EndoBon Xenograft or RegenerOss Xenograft with appropriate healing time of 6 months for delayed implant placement cases.<sup>13, 14, 18, 27, 28</sup></li> <li>Consider using the ZimVie Socket Repair Membrane. This membrane is pre-shaped to fit into single root sockets. It is designed to support the soft tissue and assist wound healing in alveolar facial plate repair. After atraumatic flapless extraction, insert the small end into the socket ensuring that it extends over the facial defect both laterally and apically. The external extension of the membrane can be folded over the top of the socket and sutured to the palatal/lingual soft tissue to help to contain the graft material.<sup>23, 29-31</sup></li> </ul>
				Preservation without further implant placement	<ul style="list-style-type: none"> <li>Consider using a volume-stable bone graft such as Endobon Xenograft or IngeniOs HA particulates to help preserve bone volume in the absence of a tooth or implant.<sup>4, 21</sup></li> </ul>
		>50%	Localized Ridge Augmentation	<ul style="list-style-type: none"> <li>Consider using the small particle size of RegenerOss Xenograft or Puros Allograft Blend, as it will provide sufficient space maintenance for de novo bone formation throughout the graft site within 6 months healing time.<sup>5, 32</sup> Consider using Puros Allograft Cancellous Particulates when rapid bone formation within 4 months is preferred.<sup>24, 33</sup></li> <li>Consider using CopiOs Pericardium Membrane or OsseoGuard Flex Membrane. Both membranes have excellent drapability and can easily adapt to the ridge contour.<sup>4, 5, 34, 35</sup> In certain defect geometries PEEK AccuraPlate or OsseoGuard PTFE Titanium-Reinforced Membrane might be indicated to further secure the bone graft particulates.<sup>36, 37</sup></li> </ul>	
	with open flap		Thin Biotype	<ul style="list-style-type: none"> <li>Consider using Puros Allograft Particulates (Cancellous or Blend) as it will turn over for rapid de novo bone formation within 4-6 months healing time.<sup>24, 33, 35, 38</sup> If Puros Allograft is not available, consider recommending EndoBon Xenograft or RegenerOss Xenograft with appropriate healing time of 6 months.<sup>12, 13, 18</sup></li> <li>Consider using OsseoGuard Flex, CopiOs Pericardium or CopiOs Extend as they contour to the surface of the graft when hydrated.<sup>4, 5, 34, 35</sup></li> <li>Consider recommending Puros Dermis to enhance soft tissue thickness.<sup>39, 40</sup></li> </ul>	
			Thick Biotype	<ul style="list-style-type: none"> <li>Consider using Puros Allograft Particulates (Cancellous or Blend) as it will turn over for rapid de novo bone formation within 4-6 months healing time.<sup>41, 42</sup> If Puros in not available, consider recommending EndoBon Xenograft or RegenerOss Xenograft with appropriate healing time of 6 months.<sup>12, 13, 18</sup></li> <li>Consider using OsseoGuard Flex, CopiOs Pericardium or CopiOs Extend as they contour to the surface of the graft when hydrated.<sup>4, 5, 34, 35</sup></li> </ul>	



# Regenerative Product Selection Criteria



Indication	Indication Type	Filters	Product Recommendation
Sinus Lift	—	<p>Lateral</p> 	<ul style="list-style-type: none"> <li>• Consider using Puros Allograft Particulates (Cortical or Blend), RegnerOss Xenograft or Endobon Xenograft for long-term volume maintenance. Also recommend healing times between 4-6 months in two stage approaches.<sup>1-13</sup></li> <li>• Consider using BioMend Extend to cushion the delicate Schneiderian membrane and CopiOs Pericardium to cover the lateral window.<sup>14-16</sup></li> </ul>
		<p>Crestal</p> 	<ul style="list-style-type: none"> <li>• Consider using Puros Allograft Particulates (Cortical or Blend), RegnerOss Xenograft or Endobon Xenograft.<sup>9, 12, 13</sup></li> </ul>


# Regenerative Product Selection Criteria




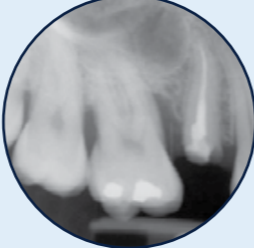
Indication	Indication Type	Filters	Product Recommendation
Horizontal Ridge Augmentation	—	<p>Immediate implant placement</p> 	<ul style="list-style-type: none"> <li>• Consider using Endobon Xenograft or Puros Allograft Particulates (Cancellous or Blend) as it will turn over for rapid de novo bone formation and stabilize ridge dimensions.<sup>1-3</sup></li> <li>• Consider using CopiOs Extend, CopiOs Pericardium or OsseoGuard Flex. All these membranes have excellent drapability and can easily adapt to the ridge contour.<sup>4-7</sup></li> </ul>
		<p>Delayed implant placement</p> 	<p><b>Option using bone particulates</b></p> <ul style="list-style-type: none"> <li>• Consider using Endobon or RegenerOss Xenograft to support volume stability during healing time. When allograft is preferred consider Puros Allograft Particulate (Cancellous or Blend) and appropriate healing time of at least 4 months.<sup>8,9</sup></li> <li>• Consider using CopiOs Pericardium or OsseoGuard Flex. These membranes have excellent drapability and can easily adapt to the graft material.<sup>4-7</sup> When more stability or horizontal bone gain is required, consider using PEEK AccuraPlate or OsseoGuard PTFE Titanium-Reinforced Membrane since both secure bone graft particulates for undisturbed healing.<sup>10,11</sup></li> </ul> <p><b>Option using bone blocks</b></p> <ul style="list-style-type: none"> <li>• Consider using Puros Allograft Pre-shaped Blocks or Puros Allograft Customized Blocks to rebuild lost hard tissue. Also consider using Puros Allograft Cortical or Blend Particulate to fill gaps and space around fixed block graft.<sup>12-17</sup> Recommend healing time of at least 6 months before placing the implants.</li> <li>• Consider using OsseoGuard Flex, CopiOs Extend or CopiOs Pericardium. These membranes have excellent drapability and can easily adapt to the shape and size of the bone block.<sup>12,18</sup> Primary tension-free closure is highly recommended.<sup>3</sup></li> </ul>

# Regenerative Product Selection Criteria




Indication	Indication Type	Filters	Product Recommendation
Horizontal and vertical ridge augmentation	—	<p style="text-align: center;">Delayed Implant Placement</p> 	<p><b>Option using bone particulates</b></p> <ul style="list-style-type: none"> <li>Consider using Endobon or RegenerOss Xenograft to ensure volume stability during healing time. When allograft is preferred consider Puros Allograft Particulate (Cancellous or Blend) and appropriate healing time of at least 4 months.<sup>1, 2</sup> The bone graft particulates should be stabilized with Titanium-, PEEK AccuraMesh or OsseoGuard PTFE Titanium-Reinforced Membrane to secure bone graft particulates for undisturbed healing.<sup>3-6</sup></li> <li>Consider using CopiOs Pericardium, CopiOs Extend or OsseoGuard Flex to cover Titanium- or PEEK AccuraMesh when used. These membranes have excellent drapability and can easily adapt to the PTFE or mesh surface.<sup>7-10</sup></li> </ul> <p><b>Option using bone blocks</b></p> <ul style="list-style-type: none"> <li>Consider using Puros Allograft Pre-shaped Blocks or Puros Allograft Customized Blocks to rebuild lost hard tissue. Also consider using a Puros Allograft Cortical or Blend Particulate to fill gaps and space around fixed block graft.<sup>11-14</sup> Recommend healing times of at least 6 months before placing the implants.<sup>11,14</sup></li> <li>Consider using OsseoGuard Flex, CopiOs Extend or CopiOs Pericardium. These membranes have excellent drapability and can easily adapt to the shape and size of the bone block.<sup>11, 15</sup> Primary tension-free closure is highly recommended.<sup>3</sup></li> </ul>

# Regenerative Product Selection Criteria

Indication	Indication Type	Filters	Product Recommendation
Peridontal Defects	Defect Size	<p style="text-align: center;">Small</p> 	<ul style="list-style-type: none"> <li>Consider debridement and root scaling followed by covering the bony defect with BioMend or Biomend Extend membrane. Biomend membranes are rigid enough to create space under the soft tissue which allows new bone formation in guided tissue regeneration treatments.<sup>1-4</sup></li> </ul>
		<p style="text-align: center;">Large</p> 	<ul style="list-style-type: none"> <li>Consider using Puros Allograft Cancellous Particles as it will turn over quickly for rapid de novo bone formation.<sup>5-11</sup></li> </ul>

# Regenerative Product Selection Criteria



Indication	Indication Type	Filters	Product Recommendation
Soft-Tissue Augmentation	—	<p>Recession coverage</p> 	<ul style="list-style-type: none"> <li>Consider using Puros Allograft Dermis Tissue Matrix. Puros Allograft Dermis Tissue Matrix acts as a scaffold for the ingrowth of patients own vascularized connective tissue replacing Puros Allograft Dermis after a couple of months.<sup>1-6</sup></li> </ul>
		<p>Soft-Tissue Thickening <i>At Implant Sites or Natural Tooth/Teeth</i></p>	<ul style="list-style-type: none"> <li>Consider using Puros Allograft Dermis Tissue Matrix. Puros Allograft Dermis Tissue Matrix acts as a scaffold for the ingrowth of patients own vascularized connective tissue replacing Puros Allograft Dermis after a couple of months.<sup>7-9</sup></li> </ul>

Healing times can vary due to different factors such as used graft volume, patient related factors, indication and more.

## Extraction Sites

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2. Sclar A.G. *J Oral Maxillofac Surg* (2004) 62:90-105.
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7. Wang H.L. et al. *Implant Dent* (2007) 16:33-41.
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12. Guarnieri R. et al. *J Oral Maxillofac Res* (2019) 10:e3.
13. Guarnieri R. et al. *Regenerative Biomaterials* (2017) 4:125-128.
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20. Fotek P.D. et al. *J Periodontol* (2009) 80:776-85.
21. Holweg A. et al. *EDI Journal* (2012) 3:64-73.
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23. Elia N. et al. *Pract Proced Aesthet Dent* (2007) 19:99-104.
24. Block M.S. et al. *J Oral Maxillofac Surg* (2004) 62:67-72.
25. Fu J.-H. et al. *Clin Adv Periodontics* (2012) 2:172-177.
26. Garaicoa C. et al. *Clin Implant Dent Relat Res* (2015) 17:717-23.
27. Lupovici J. *Compend Contin Educ Dent* (2010) 31:614-8, 620, 622-3.
28. Wen S. et al. *Int J Periodontics Restorative Dent* (2018) 38:79.
29. Chu S.J. et al. *Compend Contin Educ Dent* (2015) 36:516, 518-20, 522 passim.
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31. Hoang T.N. et al. *J Periodontol* (2012) 83:174-81.
32. Beltrán V. et al. *Int J Clin Exp Med* (2016) 9:2229-2236.
33. Block M.S. *Atlas Oral Maxillofac Surg Clin North Am* (2006) 14:27-38.
34. Park S.H. et al. *Clin Oral Implants Res* (2008) 19:32-41.
35. Sterio T.W. et al. *Int J Periodontics Restorative Dent* (2013) 33:499-507.
36. PEEK AccuraPlate IFU latest revision.
37. OsseoGuard PTFE Membrane IFU latest revision.
38. Block M.S. et al. *J Am Dent Assoc* (2002) 133:1631-1638.
39. Farina V. et al. *Int J Oral Maxillofac Implants* (2015) 30:909-17.
40. Kroiss S. et al. *Quintessence Int* (2019) 50:278-285.
41. Waki T. et al. *Int J Esthet Dent* (2016) 11:174-185.
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## Sinus lift

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3. Berberi A. et al. *Implant Dent* (2016) 25:353-60.
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5. Monje A. et al. *Int J Oral Maxillofac Implants* (2017) 32:121-127.
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9. RegenerOss Xenograft IFU latest revision.
10. Soardi C.M. et al. *Int J Periodontics Restorative Dent* (2020) 40:757-764.
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12. Endobon Xenograft IFU latest revision.
13. Puros Allograft IFU latest revision.
14. Barnett A.S. et al. *Clin Adv Periodontics* (2014) 4:175-181.
15. Pikos M.A. *Implant Dent* (2008) 17:24-31.
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## Horizontal Ridge Augmentation

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2. Le B.T. et al. *J Craniomaxillofac Surg* (2014) 42:552-9.
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4. Fu J.H. et al. *Clin Oral Implants Res* (2014) 25:458-67.
5. Castillo R.A.d. *Inside Dent* (2011) 7:94-96.
6. Park S.H. et al. *Clin Oral Implants Res* (2008) 19:32-41.
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8. Block M.S. *Atlas Oral Maxillofac Surg Clin North Am* (2006) 14:27-38.
9. Block M.S. et al. *J Oral Maxillofac Surg* (2004) 62:67-72.
10. PEEK AccuraPlate IFU latest revision.
11. OsseoGuard Titanium-Reinforced PTFE Membrane IFU latest revision.
12. Keith J.D. et al. *Int J Periodontics Restorative Dent* (2006) 26:321-327.
13. A. M. et al. *J Oral Science Rehabilitation* (2017) 3:18-30.
14. Leong D.J. et al. *Implant Dent* (2015) 24:4-12.
15. Laino L. et al. *Biomed Res Int* (2014) 2014:982104.
16. Engler-Hamm D. *Implantologie* (2018) 26:231-242.
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## Horizontal and vertical ridge augmentation

1. Block M.S. Atlas Oral Maxillofac Surg Clin North Am (2006) 14:27-38.
2. Block M.S. et al. J Oral Maxillofac Surg (2004) 62:67-72.
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4. Titanium AccuraMesh IFU latest revision.
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## Periodontal defects

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7. Vastardis S. et al. Compend Contin Educ Dent (2006) 27:38-44.
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## Soft-Tissue Augmentation

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2. Al-Hezaimi K. et al. J Periodontol (2012) 84:1172-1179.
3. Carney C.M. et al. J Periodontol (2011) 83:1-13.
4. Barker T.S. et al. J Periodontol (2010) 81:1596-603.
5. Petrunaro P. Inside Dent (2007) 3:2-4.
6. Kroiss S. et al. Quintessence Int (2019) 50:278-285.
7. Puisys A. et al. Clin Oral Implants Res (2015) 26:123-9.
8. Farina V. et al. Int J Oral Maxillofac Implants (2015) 30:909-17.
9. Owens J.L. et al. Clin Adv Periodontics (2017) 7:122-127.

All healing times mentioned can vary due to different factors such as used graft volume, patient related factors, indication and more.

The information contained herein is simplified for the purposes of the selection criteria. Patient specific needs have to be taken into consideration in every single case.

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