

# The Impact of Bioceramic Scaffolds on Bone Regeneration in Preclinical *In Vivo* Studies: A Systematic Review

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**Table S1.** Search strategies used for Web of Science (WoS) and Medline (PubMed) and related results.

| Database                                   | Search | Search Strategies                                                                                                                                                                                                                                                                                                                                                                        | Number of Publications |
|--------------------------------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| WoS                                        | A      | ALL = (bone AND scaffolds AND bioceramic AND animal)                                                                                                                                                                                                                                                                                                                                     | 19                     |
|                                            | B      | ALL = (bone AND scaffolds AND bioceramic AND in vivo)                                                                                                                                                                                                                                                                                                                                    | 99                     |
|                                            | C      | ALL = (bone AND grafting AND bioceramic AND animal)                                                                                                                                                                                                                                                                                                                                      | 12                     |
|                                            | D      | ALL = (bone AND grafting AND bioceramic AND in vivo)                                                                                                                                                                                                                                                                                                                                     | 42                     |
|                                            | E      | ALL = (bone regeneration AND animal AND bioceramic)                                                                                                                                                                                                                                                                                                                                      | 19                     |
|                                            | F      | ALL = (bone regeneration AND in vivo AND bioceramic)                                                                                                                                                                                                                                                                                                                                     | 93                     |
|                                            | G      | ALL = (bone defect AND bioceramic AND animal)                                                                                                                                                                                                                                                                                                                                            | 19                     |
|                                            | H      | ALL = (bone defect AND bioceramic AND in vivo)                                                                                                                                                                                                                                                                                                                                           | 74                     |
| <b>After duplicates removal within WoS</b> |        |                                                                                                                                                                                                                                                                                                                                                                                          | <b>150</b>             |
| PubMed                                     | A      | ((("bone and bones"[MeSH Terms] OR ("bone"[All Fields] AND "bones"[All Fields]) OR "bone and bones" [All Fields] OR "bone" [All Fields]) AND scaffolds [All Fields] AND bioceramic [All Fields] AND ("animals" [MeSH Terms:noexp] OR animal [All Fields])) AND ("2013/01/01" [PDAT]: "2018/11/21" [PDAT]))                                                                               | 53                     |
|                                            | B      | ((("bone and bones" [MeSH Terms] OR ("bone" [All Fields] AND "bones" [All Fields]) OR "bone and bones" [All Fields] OR "bone" [All Fields]) AND scaffolds [All Fields] AND bioceramic [All Fields] AND ("In Vivo" [Journal] OR "In Vivo (Brooklyn)" [Journal] OR ("in" [All Fields] AND "vivo" [All Fields]) OR "in vivo" [All Fields])) AND ("2013/01/01" [PDAT]: "2018/11/21" [PDAT])) | 37                     |
|                                            | C      | ((("bone transplantation" [MeSH Terms] OR ("bone" [All Fields] AND "transplantation" [All Fields]) OR "bone transplantation" [All Fields] OR ("bone"[All Fields] AND "grafting"[All Fields]) OR "bone grafting" [All Fields]) AND bioceramic [All Fields] AND ("animals" [MeSH Terms:noexp] OR animal [All Fields])) AND ("2013/01/01" [PDAT]: "2018/11/21" [PDAT]))                     | 10                     |
|                                            | D      | ((("bone transplantation" [MeSH Terms] OR ("bone" [All Fields] AND "transplantation" [All Fields]) OR "bone transplantation" [All Fields] OR ("bone" [All Fields] AND "grafting" [All Fields]) OR "bone grafting" [All Fields]) AND bioceramic [All Fields] AND ("In Vivo" [Journal] OR "In Vivo (Brooklyn)" [Journal] OR "in" [All Fields]                                              | 7                      |

|   |                                                                                                                                                                                                                                                                                                                                                                                                      |           |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|   | AND "vivo" [All Fields]) OR "in vivo" [All Fields])) AND<br>("2013/01/01" [PDAT]: "2018/11/21" [PDAT])                                                                                                                                                                                                                                                                                               |           |
| E | ((("bone regeneration" [MeSH Terms] OR ("bone" [All Fields] AND<br>"regeneration" [All Fields]) OR "bone regeneration" [All Fields])<br>AND ("animals" [MeSH Terms:noexp] OR animal [All Fields]) AND<br>bioceramic [All Fields]) AND ("2013/01/01" [PDAT]: "2018/11/21"<br>[PDAT])                                                                                                                  | 52        |
| F | ((("bone regeneration" [MeSH Terms] OR ("bone" [All Fields] AND<br>"regeneration" [All Fields]) OR "bone regeneration" [All Fields])<br>AND ("In Vivo" [Journal] OR "In Vivo (Brooklyn)" [Journal] OR ("in"<br>[All Fields] AND "vivo" [All Fields]) OR "in vivo" [All Fields]) AND<br>bioceramic [All Fields]) AND ("2013/01/01" [PDAT] : "2018/11/21"<br>[PDAT])                                   | 32        |
| G | ((("bone and bones" [MeSH Terms] OR ("bone" [All Fields] AND<br>"bones" [All Fields]) OR "bone and bones" [All Fields] OR "bone" [All<br>Fields]) AND defect [All Fields] AND bioceramic [All Fields] AND<br>("animals" [MeSH Terms:noexp] OR animal [All Fields])) AND<br>("2013/01/01" [PDAT] : "2018/11/21" [PDAT])                                                                               | 28        |
| H | ((("bone and bones" [MeSH Terms] OR ("bone" [All Fields] AND<br>"bones" [All Fields]) OR "bone and bones" [All Fields] OR "bone" [All<br>Fields]) AND defect [All Fields] AND bioceramic [All Fields] AND<br>("In Vivo" [Journal] OR "In Vivo (Brooklyn)" [Journal] OR ("in" [All<br>Fields] AND "vivo" [All Fields]) OR "in vivo" [All Fields])) AND<br>("2013/01/01" [PDAT] : "2018/11/21" [PDAT]) | 21        |
|   | <b>After duplicates removal within PubMed</b>                                                                                                                                                                                                                                                                                                                                                        | <b>91</b> |

**Table S2.** Categories to assess the quality of the included studies.

| Item | Description                                                                                                      | Grade                                                                           |
|------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| 1    | Ethical statement (nature of ethical review permissions or institutional guidelines for care and use of animals) | 0 = clearly insufficient<br>1 = possibly sufficient<br>2 = clearly sufficient   |
| 2    | Experimental procedures (precise details of all procedure performed)                                             | 0 = clearly insufficient<br>1 = possibly sufficient<br>2 = clearly sufficient   |
| 3    | Experimental animals (details of animal used including species, developmental stage or mean age, diagnosis)      | 0 = clearly insufficient<br>1 = possibly sufficient<br>2 = clearly sufficient   |
| 4    | Randomization                                                                                                    | 0 = no<br>1 = unclear<br>2 = yes                                                |
| 5    | Allocation concealment                                                                                           | 0 = no<br>1 = unclear<br>2 = no                                                 |
| 6    | Sample size calculation                                                                                          | 0 = yes<br>1 = unclear<br>2 = no                                                |
| 7    | Completeness of information                                                                                      | 0 = no<br>1 = unclear<br>2 = yes                                                |
| 8    | Blinding of the evaluator                                                                                        | 0 = no<br>1 = unclear<br>2 = yes                                                |
| 9    | Financial conflict of interest                                                                                   | 0 = clearly inadequate<br>1 = unclear/possibly adequate<br>2 = clearly adequate |