Let’s search for

**Mesenchymal stem cell for cardiac repair**

1. Research topic search: Mesenchymal stem cell for cardiac repair
2. Choose concepts, closely associated
3. Hover mouse over breadcrumb trail to see the breakdown of where the references are from
4. Go to Preferences, check the box for “Remove duplicate references” and “Keep me Posted”
5. Click on “Other sources” to open full text options in another tab. (If no new tab is opened, check that the pop up blocker is turned off and try again)
6. Refine by Research Topic “hydrogel”
7. Click on the title “Enhanced infarct myocardium repair mediated by thermosensitive copolymer hydrogel-based stem cell transplantation”
8. Click on “Link to Other sources” to get full text link options
9. Review Concepts and Substances under Indexing
10. Click on the magnifying glass icon to see structures of the polymer and/or click on the CAS RN to view details on each substance
11. Review the important concepts in this reference. Click on “Hydrogel” to view all references that contain this concept.
12. Refine by research topic “mesenchymal stem cell”
13. Analyze my Index terms, click on show more, select “stem cell transplantation”, Keep analysis
14. Use breadcrumb trail and return to initial answer set
15. Refine by research topic “stem cell transplantation”
16. Click on Keep Me Posted to create email notifications for research topic of interest
17. Categorize -> Polymer chemistry -> Polymers -> Chitosan
18. Export -> *.ris for importing into Endnote or Mendeley.
Example 2

Materials/Medical Devices

Medical implants are artificial substitutes for body parts. Although the implant industry has developed quickly in recent years, there is still no ideal material. Metals are traditionally used in bone implants for their tensile strength, however they are prone to degradation in the acidic environment of the human body. This led to the use of materials that are biocompatible and also biodegradable. However, the mechanical properties of these materials must not be compromised. For your project, you are tasked to develop novel composites materials that has the required mechanical properties as well as biodegradability.

Use SciFinder to help you get a better understanding of this research area and plan for your project,

Question 1: Find out what are the more widely used biodegradable materials in medical implants.

Step 1: Research topic search “biodegradable materials in medical implants”
  - Concepts, closely associated

Step 2: Categorize => Biotechnology => Substances in Medicine

Question 2: Next find out if any metal alloy composites with these biodegradable polymers/materials have been studied in literature and see if we can find out what metals have been used in these metal composites materials.

Step 1: Refine by Research topic “metal alloys”

Step 2: Categorize => Technology => Substances in Technology or Metallurgy => AZ31B

Step 3: Click on any reference title => look for AZ31B under substance indexing

Step 4: Click on the magnifying glass icon to see what substance is AZ31B
Question 3: Now we will like to take a closer look at the use of Magnesium alloys in biodegradable composites for medical implants and find out what are some mechanical properties that others have looked at to guide your project.

Step 1: Research topic search “magnesium alloys”

Step 2: Analyze by CA Section title => Pharmaceuticals

Step 3: Analyze by Index terms => Show More => Biodegradable materials, Biodegradation, Biodegradable medical goods, Biodegradability => Keep Analysis

Step 4: Click on “Method of making a stent and stent made by the method”. Review concepts -> “cardiovascular implants”

Step 5: Refine by research topic “cardiovascular implants”

Question 4: Next, find out the different Magnesium alloys reported for use in cardiovascular implants

Step 1: Get Substances, filter by Biological Study (Inspect the substance indexing of a Mg alloy for a reference example to see what is the description of its role

Step 2: Refine by Chemical Structure -> Specific Substance Class -> Alloys (Add Mg into the draw editor and select exact structure search)

Question 5: Determine which is the most frequently reported Magnesium alloy and find out its fatigue strength.

Step 1: Sort by number of references

Step 2: Click on the CAS RN => Experimental properties => Mechanical

Step 3: Click on the number under note column

Step 4: Click on Link to Other Sources

Question 6: Next, find out if alloys of Titanium, Niobium and Aluminum have been used in medical implants.

Step 1: Search by Molecular Formula => Ti.Nb.Al

Step 2: Get References => Filter by Uses (optional) => Analyze by concept headings
For a broader search: Alloys containing Ti, Nb, Al

Step 1: Search by Chemical structure => Click on Atom => Add Ti, Nb and Al to the drawing space

Step 2: Search by Exact search

Step 3: Get References => Filter by Biological Study

Question 7: Finally, find out if there is any literature precedence for additive manufacturing of Ti, Nb, and Al alloys

Step 1: Refine by Research topic “additive manufacturing”

To broaden search on “additive manufacturing”

Step 1: Click on the concept “additive manufacturing” found under Indexing section of a reference detail

Step 2: Categorize => Biotechnology => Medicine => Select relevant index terms e.g. prosthetic implants, artificial bone, orthopedic implants etc.