

# Biomimetic hydrogel-based electronic skin: An overview based on patent analysis

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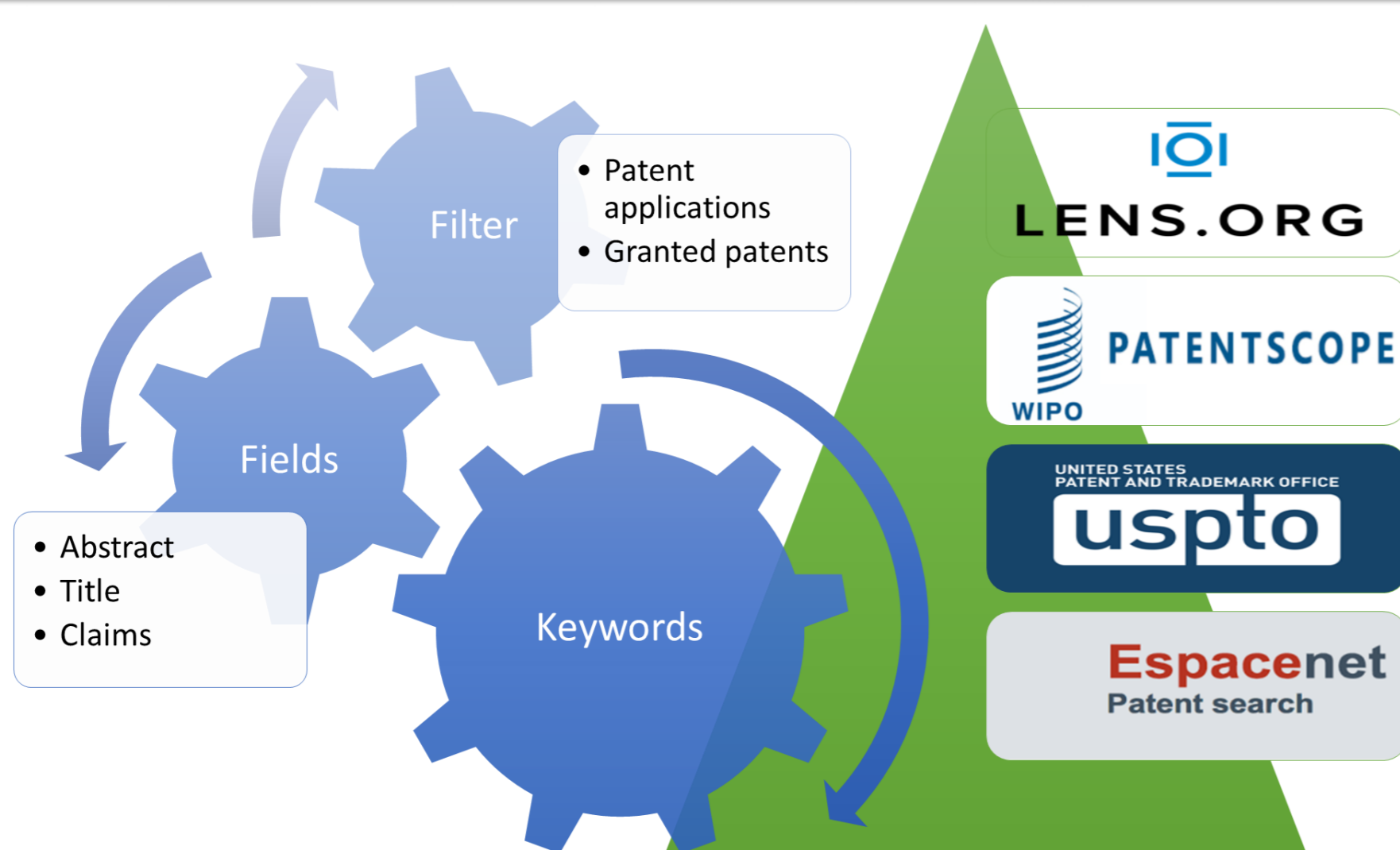
## INTRODUCTION

- One major challenge for electronic skin (e-skin) is the need for soft and stretchable electronic materials, as conventional materials present limited functionality, low surface adhesion, and relatively high power consumption.
- The development of skin-like hydrogel devices introduces an additional challenge, such as low ambient stability, because of their sensitivity to environmental conditions.
- Research and development are making progress in addressing these challenges, and there have been notable advancements in the field of biomimetic hydrogel-based e-skin.
- Innovation in this area has the potential to pay off. Organizations that invest in and develop innovative e-skin technologies based on biomimetic hydrogels can secure intellectual property rights through patents.

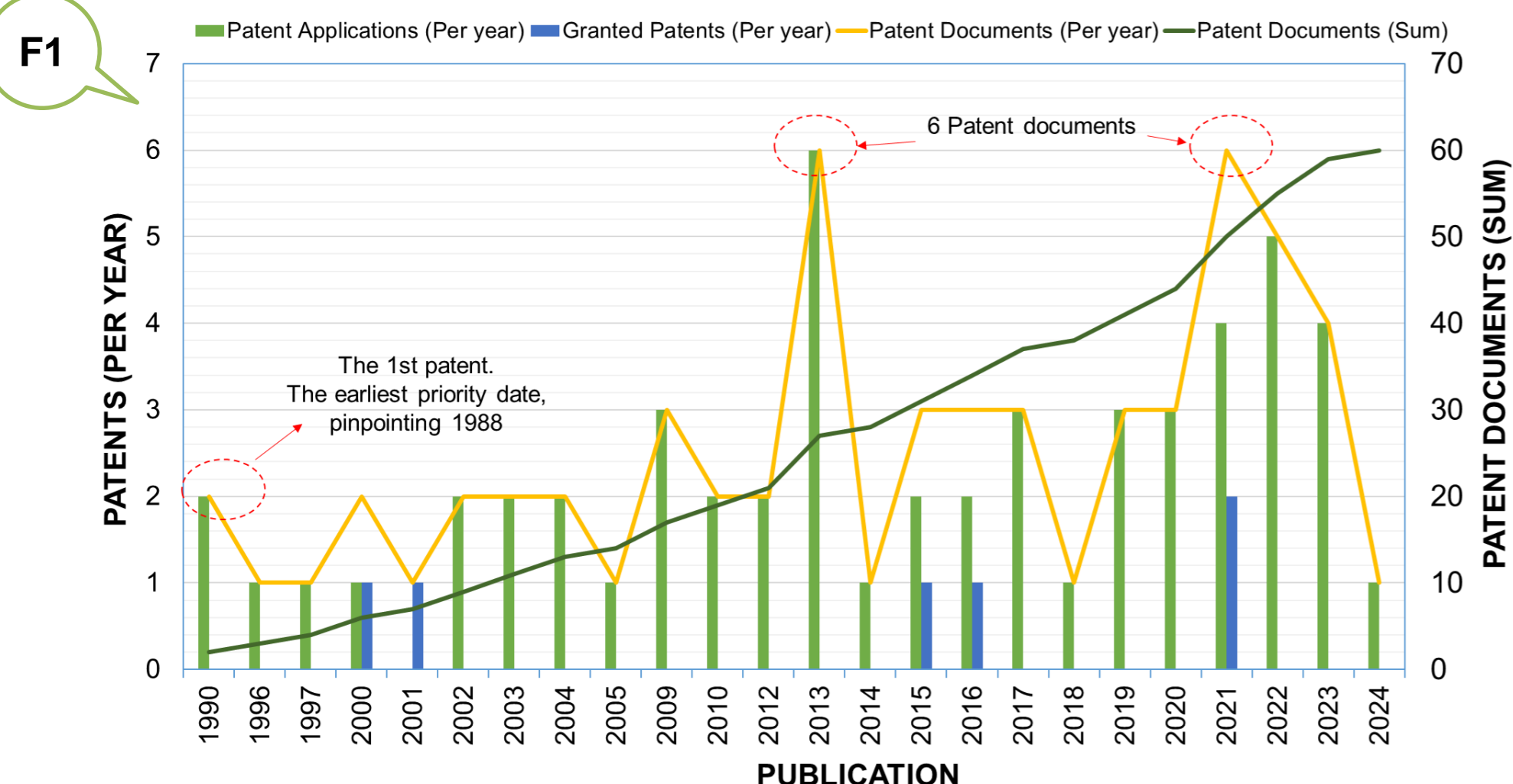
## AIM

- We analyze patents related to biomimetic hydrogel-based e-skin.
- The results are analyzed by answering specific questions, such as those relating to patterns of patenting (e.g., when, who files applications, what is filed, and where?).

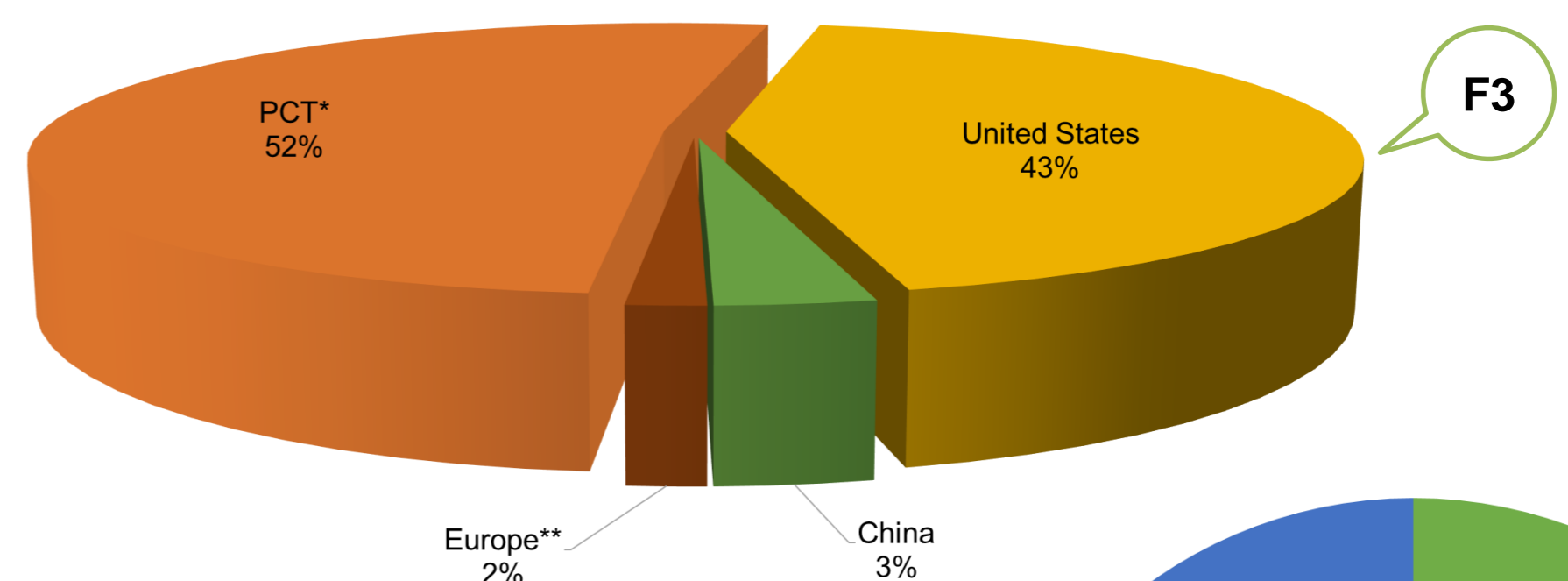
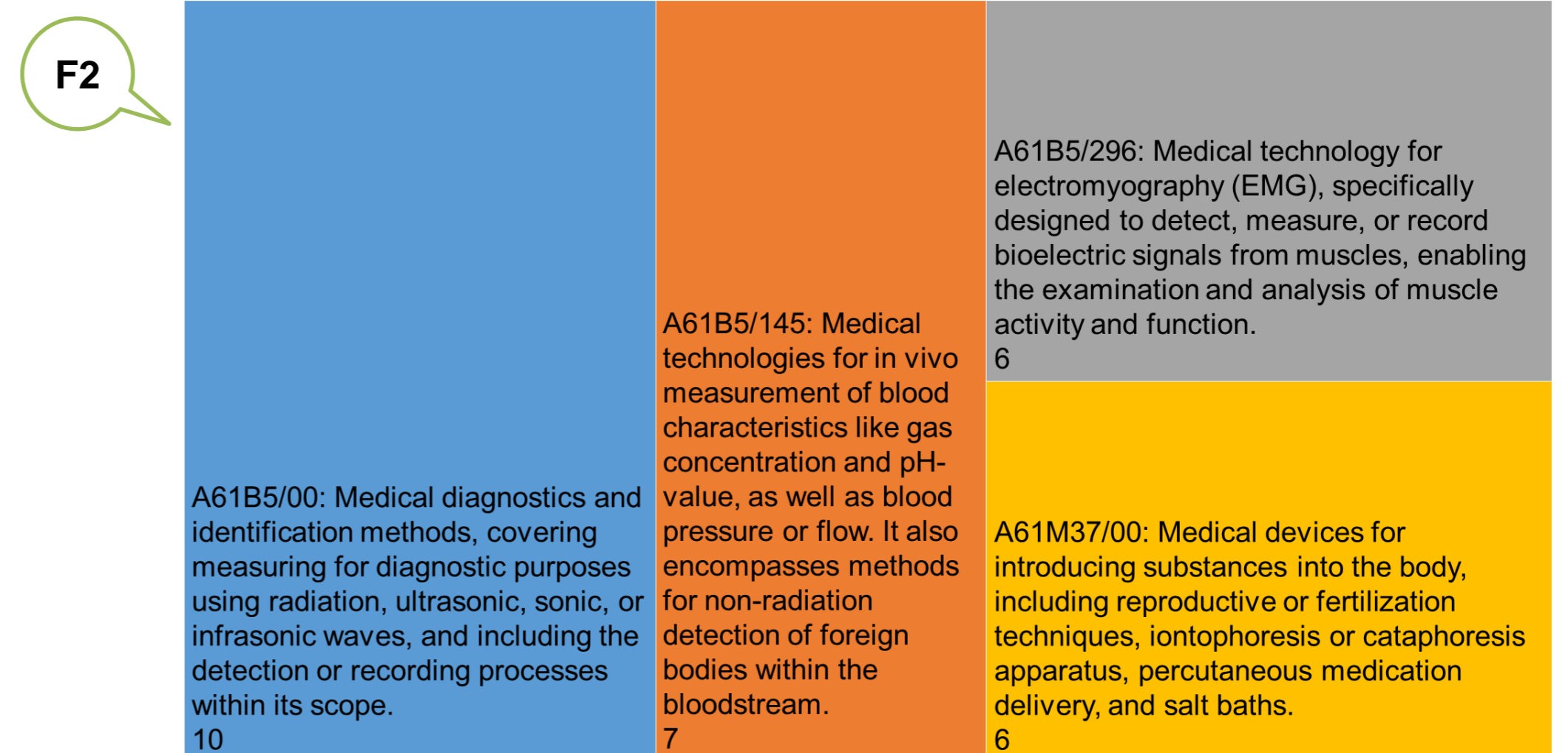
## METHOD



## RESULTS (1)

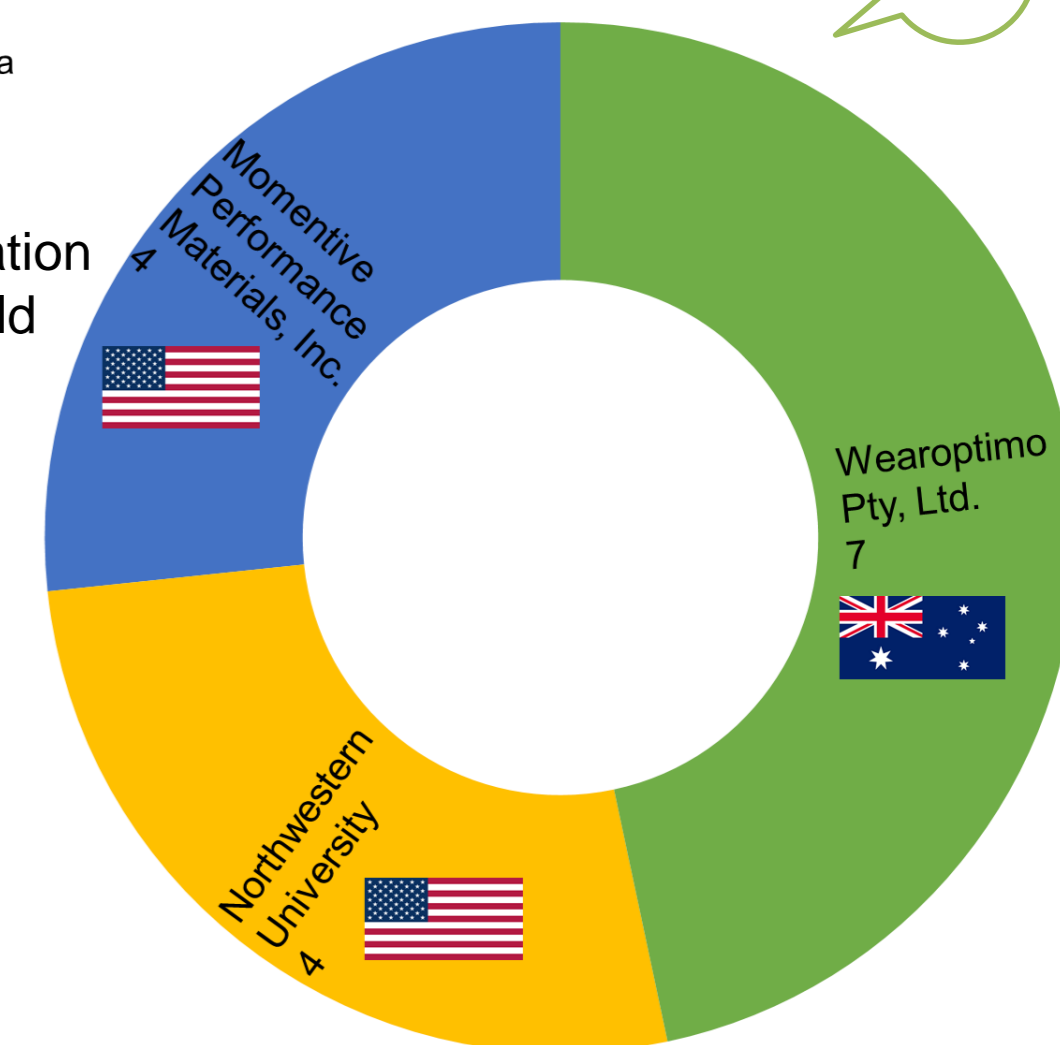


## RESULTS (2)



\*PCT: The global system for filing patent applications, known as the Patent Cooperation Treaty (PCT) and administered by the World Intellectual Property Organization (WIPO).  
\*\*Europe: patent applications are filed regionally (Europe), through the European Patent Office (EPO).

F1: Publication date  
F2: International Code Classification  
F3: Jurisdictions  
F4: Applicants



## CONCLUSION

- The zenith of patent document activity occurred in 2013 and 2021.
- Analysis reveals that the United States and China stand out as the most prolific nations (jurisdictions) in patenting biomimetic hydrogel-based e-skin.
- The majority of inventions pertaining to medical technologies and biomimetic hydrogel-based e-skin, specifically designed for hydrogels or hydrocolloids for use in prostheses or as coating chemical sensors, are distinguished by their functional attributes and physical properties.

## REFERENCES

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