



UNIVERSITAS PADJADJARAN
FACULTY OF PHARMACY

CARA EFEKTIF MEMBUAT ARTIKEL REVIEW





PENENTUAN TEMA

PADA ARTIKEL REVIEW INI DIPILIH TEMA : **“MICRONEEDLE AS DRUG DELIVERY SYSTEM”**

PENENTUAN JUDUL

PADA ARTIKEL REVIEW INI DIPILIH JUDUL :

“ADVANCE IN FORMULATION OF DISSOLVING MICRONEEDLE FOR INFLAMATORY DISEASES”

VERIFIKASI JUDUL

MEMASTIKAN BAHWA JUDUL ARTIKEL REVIEW INI BELUM PENAH ADA PUBLIKASINYA. DILIHAT **PADA SCOPUS, PUBMED, GOOGLE, GOOGLE SCHOLAR**. SEHINGGA BISA DIPASTIKAN BAHWA **JUDUL INI BARU**



PENCARIAN ARTIKEL
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	Document title	Authors	Source	Year	Citations
<input type="checkbox"/> 1	Article Microneedles incorporating oridonin micelles and Cu(II)-polydopamine provide effective inflammatory regulation and antibacterial effects for the healing of infected diabetic wounds	Nan, W. , Wang, H. , Li, L. , ... Wang, Y. , Ding, D.	Colloids and Surfaces B Biointerfaces , 254, 114814	2025	0



**MENENTUKAN KRITERIA INKLUSI
DAN EKSKLUSI ARTIKEL**

DENGAN MEMBACA JUDUL, ABSTRAK DAN ISI ARTIKEL RESEARCH YANG DIDAPAT DARI SCOPUS, PUBMED, GOOGLE SCHOLAR,
TERPILIH ARTIKEL YANG MASUK DALAM KRITERIA REVIEW ARTIKEL YANG AKAN DIBUAT SEBANYAK **35 ARTIKEL RESEARCH**.

Title	Year	DOI
Topical hyaluronic acid microneedle insertion alleviates long-term imiquimod-induced skin lesion and extracutaneous inflammation in a mouse model: skin hyaluronic acid approach might benefit systemic health	2024	10.1080/14786419.2023.2239988
Dissolvable hybrid microneedle patch for efficient delivery of curcumin to reduce intraocular inflammation	2023	10.1016/j.ijpharm.2023.123205
An inflammation-responsive double-layer microneedle patch for recurrent atopic dermatitis therapy	2023	10.1016/j.ijpharm.2023.123215
Matrine-loaded self-adhesive swelling microneedle for inflammation regulation to improve eczema treatment	2024	10.1007/s42995-024-00235-z
Transdermal delivery of iguratimod and colchicine ethosome by dissolving microneedle patch for the treatment of recurrent gout	2024	10.1016/j.colsurfb.2024.114087
Multienzyme-Like Nanozyme Encapsulated Ocular Microneedles for Keratitis Treatment	2024	10.1002/sml.202308403

DIEKSTRAK PADA FORMAT EXEL



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REVIEW

Advances in Formulations of Microneedle System for Rheumatoid Arthritis Treatment

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DI PUBLISH DI JURNAL TUJUAN YANG
MEMILIKI KEMIRIPAN JUDUL & KONSEP
DENGAN ARTIKEL REVIEW YANG AKAN
DIBUAT



CONTOH ANALISIS SKEMA JURNAL ACUAN

HAL-HAL YANG HARUS DI PELAJARI PADA JURNAL ACUAN :

- ✓ KEDALAMAN REVIEW YANG DIBUAT
- ✓ JUMLAH SITASI YANG DIGUNAKAN
- ✓ LAYOUT REVIEW
- ✓ PENYAJIAN DATA (TABEL & GAMBAR)

Introduction

Rheumatoid arthritis (RA), the most common type of autoimmune arthritis, is accompanied by chronic inflammation and joint swelling, stiffness, and erosion.¹ Severe RA can lead to dysfunction, organ failure, infection, and even death.² At present, the pathogenesis of RA is still in the exploratory stage. Related studies showed that RA occurrence might be connected to autoimmune, genetic, infection, smoking, and other factors.³ Various inflammatory mediators, such as tumor necrosis factor- α (TNF- α), C-reactive protein, CD40L, interleukin (IL)-18, IL-20, monocyte chemoattractant protein-1, nuclear factor- κ B receptor activator ligand fractal protein, matrix metalloproteinase-9, and adhesion molecules, play an important role in the development of the disease.⁴⁻⁶ Although the cause of RA is complicated, several classes of drugs are commonly used in clinical practice, to control the development of the disease and reduce joint damage such as nonsteroidal anti-inflammatory drugs (NSAIDs), disease-modifying antirheumatic drugs (DMARDs), immunosuppressive drugs, biological agents, small interfering RNA (siRNA), and natural small-molecule compounds.^{7,8} Although the above-mentioned drugs have some therapeutic effects, they still have some disadvantages including the need for high doses, poor patient compliance, less drug accumulation in joints, and extraarticular adverse reactions. In addition, most drugs through intravenous/intra-articular injection have lower bioavailability and faster systemic clearance.⁹⁻¹¹ Nano drug delivery system, as a new drug delivery technology, can increase the solubility of drugs, change the distribution of drugs in the body, improve the targeting of drugs, and has become a research hotspot for the treatment of RA.¹²⁻¹⁴ However, as the drug delivery method is mainly injected into

Although MNs have good advantages and prospects in RA treatment, they are not summarized in detail. (Figure 1) showed different MNs applied in RA. We described the general properties of MNs, materials, preparation technology, drug release mechanism, and advantages. Then we discuss the great contribution of different types of MNs in the treatment of RA. Furthermore, we discussed the biological safety, development prospects, and future challenges of MNs, hoping to provide new thoughts for further investigations of effective RA therapy.



MEMBUAT DATA YANG AKAN DITAMPILKAN (TABEL)

Tabel harus menggambarkan daftar isi dari artikel review yang dibuat

Tabel 1. Design dan formulation of DMN

Microneedle-based	Manufacturing Method	DMNS Design	Advantage
PVA & PVP	Micro Molding	(15x15 pyramidal needle, 600 μ m needle height, 200 μ m needle base, and 500 μ m needle pitch)	Very good penetration

Bagian Merge (berdasarkan jenis polimer untuk basis)

Tabel 2. Role of DMN in Inflammatory Diseases

Diseases	Drug	Drug Modification	Study	Result
Keratitis	Curcumin	Liposom	In Vitro	Reduce intraocular inflammation faster than control
Recurrent Atopic Dermatitis				
Gout Arthritis	Colchicine			

Bagian Merge (berdasarkan jenis penyakit)



MEMBUAT DATA YANG AKAN DITAMPILKAN (TABEL)

Tabel 3. Clinical Trials of DMN in Inflammatory Diseases

Title	Year
Use of fractionated microneedle radiofrequency for the treatment of inflammatory acne vulgaris in 18 Korean patients	2012
Efficacy and Safety of Detachable Microneedle Patch Containing Triamcinolone Acetonide in the Treatment of Inflammatory Acne	2023
Acne and its post-inflammatory hyperpigmentation treatment by applying anti-acne dissolving microneedle patches	2022
Additional Use of Hyaluronic Acid-Based Dissolving Microneedle Patches to Treat Psoriatic Plaques: A Randomized Controlled Trial	2025

Outline Tambahan :

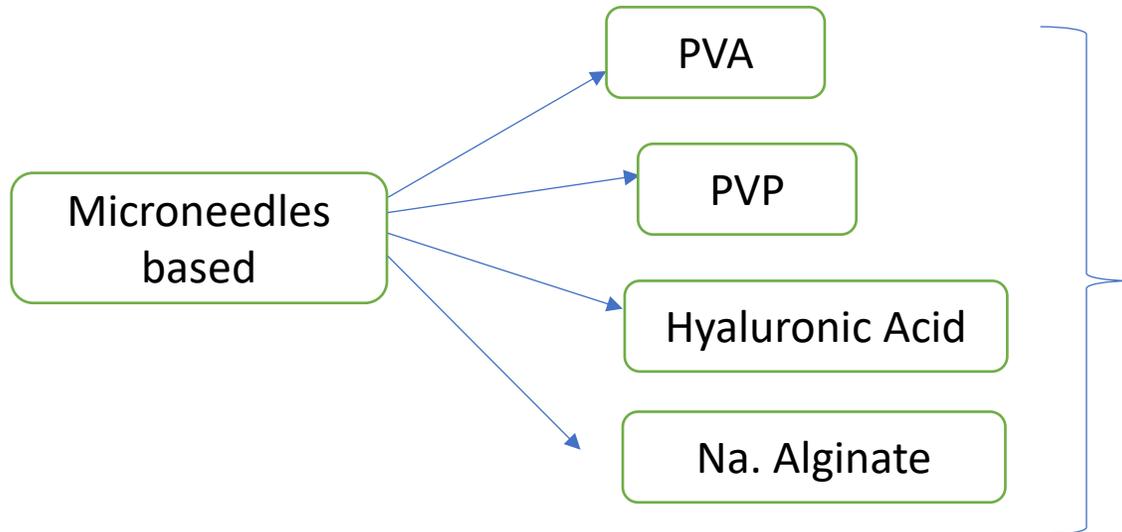
Marketed Product
Challenge and Future Perspective
Conclusion



PEMBUATAN MIND MAPING ARTIKEL
REVIEW YANG AKAN DIBUAT

Microneedle-based	Manufacturing Method	DMNS Design	Advantage
PVA & PVP	Micro Molding	(15x15 pyramidal needle, 600 μm needle height, 200 μm needle base, and 500 μm needle pitch	Very good penetration

Mind mapping dibuat dari table yang telah dirancang sebelumnya



Merancang konsep tiap sub bagian, missal :

- Termasuk Golongan Polimer apa
- Sifat Fisikokimia
- Keunggulan saat dijadikan based microneedle
- Cocok untuk pengobatan penyakit apa (sesuai dengan judul)
- Contoh penelitian (sesuai dengan judul)

RENCANA GAMBAR YANG AKAN DIMASUKKAN

Following, the application and evaluation methods of MNs in TDD are analyzed and discussed in detail.

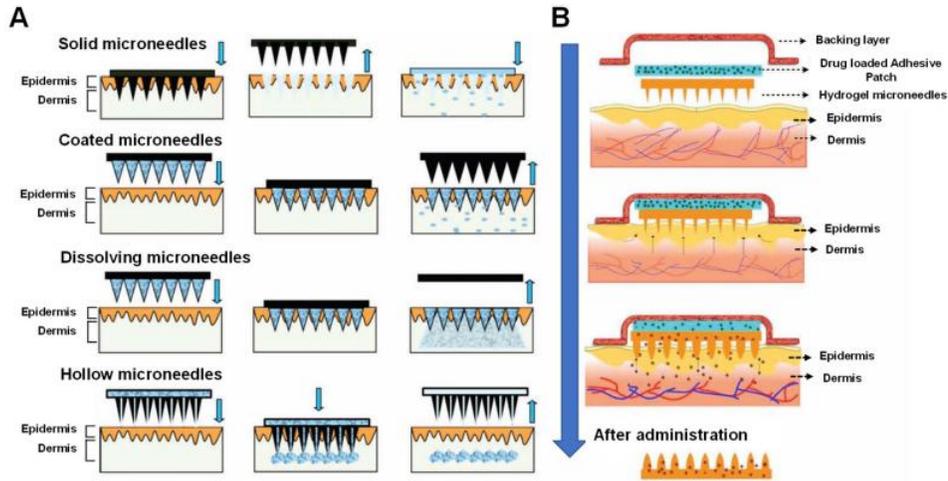


Figure 1. Schematic representation of methods of traditional (A) and hydrogel (B) microneedles mediated drug delivery across skin (arrows point to the order of operations). The figure was adopted from ref. [11] with permission from WILEY-VCH VERLAG GMBH & CO. KGAA.

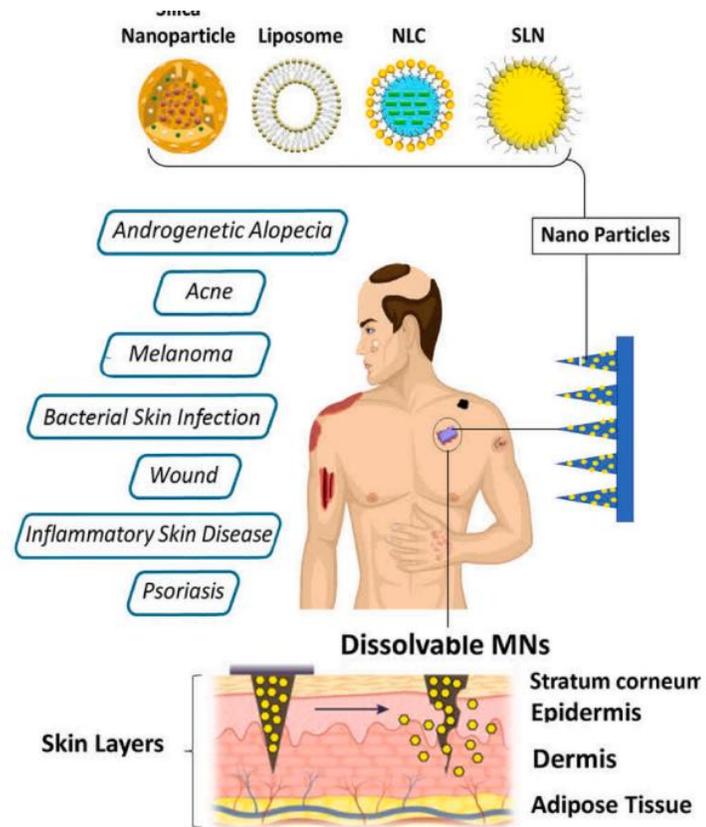


Fig. 1. Microneedle patch loaded with nanocarriers for skin treatment.



MENULIS ARTIKEL REVIEW
