



**Research Group Profile**

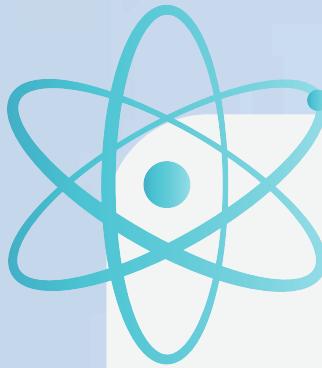
# **Pharmaceutical Nanotechnology and Drug Delivery Systems Group**

## Research Collaborators

Head : Prof. Dra. apt. Esti Hendradi, M.Si., Ph.D.

### Members:

- Dr. Tutiek Purwanti, MSi., ,Apt.
- Dr. apt. Muh. Agus Syamsur Rijal, S.Si, M.Si.
- Prof. apt. Dewi Melani Hariyadi, SSi, MPhil, PhD
- Andang Miatmoko, S.Farm., M.Pharm.Sci., Ph.D., Apt.
- Dini Retnowati, S.Farm., M.Si., Apt.



## Research Facilities

1. Spray Dryer
2. Freeze Dryer
3. Delsa Nano Sizer
4. DSC/DTA
5. FTIR
6. HPLC
7. Spectrophotometer

### VISION

To become a leading research group in the development of nanotechnology and drug delivery systems for pharmaceutical active ingredients and nutraceuticals.

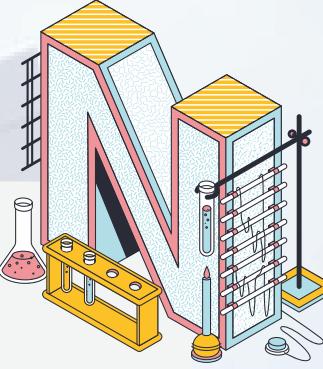
### MISSION

1. To select pharmaceutical active ingredients and nutraceutical materials for development using nanotechnology and a more effective delivery system approach.
2. To develop delivery systems for pharmaceutical active ingredients and nutraceutical materials to enhance stability and effectiveness.
3. To develop the formulation and preparation process of delivery systems for pharmaceutical active ingredients and nutraceutical materials.
4. To develop an effective and efficient manufacturing process for pharmaceutical preparations and nutraceuticals.

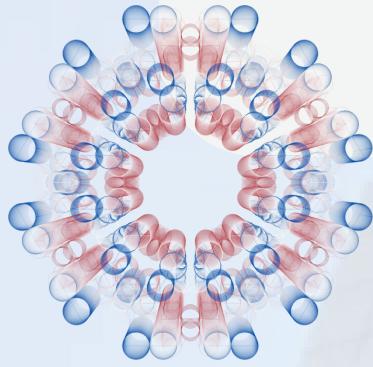




## Track Record and Featured Research Topics



1. Pre - formulation and optimization of micro-sphere formulas: pharmaceutical active ingredients (Ciprofloxacin, Erythropoietin, Glutathione, EGCG, Quercetin, VCO), and nutraceutical materials (Nissin Probiotics, BAL).
2. Formulation of drug delivery systems for pharmaceutical active ingredients (BSA, Ciprofloxacin, Erythropoietin, Glutathione, Quercetin, VCO, EGCG) and nutraceutical materials (probiotics) to enhance stability and effectiveness/efficacy.
3. Development of delivery system formulas: Transdermal delivery (Diclofenac, Meloxicam, Q10, Ovalbumin, Glutathione, VCO, EGCG), Inhalation delivery (Ciprofloxacin, BSA, Quercetin), and Oral delivery (Ciprofloxacin).
4. Development of specialized delivery systems: Bone implant delivery (Ciprofloxacin), Parenteral delivery (Erythropoietin, Chloroquine, Primaquine, Hesperidin).
5. Development of effective and efficient manufacturing processes for pharmaceutical preparations (NLC Q10 patch) and nutraceutical materials (Nissin Probiotics, BAL).



### Research Roadmap

2019 - 2022

1. Pre-formulation studies and optimization.
2. Formulation and quality control.

2023 - 2026

Up-scaling and process validation

2026 - tbc

Production and registration



Drug delivery systems and the formulation of pharmaceutical preparations that are effective, safe, and stable.