



# **J.K.K. MUNIRAJAH MEDICAL RESEARCH FOUNDATION**

## **ANNAI J.K.K. SAMPOORANI AMMAL COLLEGE OF PHARMACY**

**Ethirmediu, B. Komarapalayam-638 183, Namakkal Dist. Tamilnadu,India.**

**Approved by : Pharmacy Council of India. New Delhi & Affiliated to The Tamilnadu Dr. M.G.R Medical University, Chennai.**

**Website : [www.jkkmmrfpharmacy.edu.in](http://www.jkkmmrfpharmacy.edu.in) / E-Mail : [principal@jkkmmrfpharmacy.edu.in](mailto:principal@jkkmmrfpharmacy.edu.in)**

**Contact No : +919789456750, +919943066944, +919943069944.**

**Dr.N. SENTHILKUMAR, M.Pharm., Ph.D.,**

**Principal**

**DATE: 11.09.2022**

### **DEPARTMENT OF PHARMACEUTICS**

### **REPORT**

**SEMINAR TITLE -TRANSDERMAL DRUG DELIVERY**

**INNOVATIVE PHARMACEUTICAL DEVELOPMENTS BASED ON DISRUPTION OF THE  
BARRIER PROPERTIES OF THE STRATUM**

### **RESOURCE PERSONS**

**1.Dr.N. SENTHILKUMAR. PHARM, Ph.D.,  
PRINCIPAL**

**JKKMMRF'S ANNAI JKK SAMPOORANIAMMAL COLLEGE OF PHARMACY,**

**2. Dr.S. CHANDRA., M. PHARM, Ph.D.,  
PROFESSOR AND HOD,**

**JKKMMRF'S ANNAI JKK SAMPOORANIAMMAL COLLEGE OF PHARMACY,  
KOMARAPALAYAM.**

**No. of students enrolled: 380**

**No. of students certified: 375**

**No. of students certified in our institution : 57**

### **Objective:**

TDD is a painless method of delivering drugs systemically by applying a drug formulation onto intact and healthy skin the drug initially penetrates through the stratum corneum and then passes through the deeper epidermis and dermis without drug accumulation in the dermal layer. When drug reaches the dermal layer, it becomes available for systemic absorption via the dermal microcirculation. TDD has many advantages over other conventional routes of drug delivery



**Dr. N.SENTHILKUMAR,  
PRINCIPAL**

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ETHIRMEDU, KOMARAPALAYAM - 638 183.  
NAMAKKAL DISTRICT. TAMILNADU. INDIA.**



**Learning outcomes:**

- It can improve patient compliance due to the reduction of dosing frequencies and is also suitable for patients who are unconscious or vomiting, or those who rely on self-administration.
- TDD avoids pre-systemic metabolism, thus improving bioavailability With reference to the use of the skin as a novel site for vaccination strategies, this organ is known to be replete with dendritic cells in both the epidermal and dermal layers which play a central role in immune responses making TDD an attractive vaccination route for therapeutic proteins and peptides
- The requirement for an inexpensive and non-invasive means of vaccination
- Especially in the developing world has given rise to substantial research focused on the development of simple, needle-free systems such as TDD for vaccination purposes.

**PROGRAMME  
CO-ORDINATOR**

**HOD**

**PRINCIPAL**

**Dr. N. SENTHILKUMAR,  
PRINCIPAL,**

**JKK MUNIRAJAH MEDICAL RESEARCH FOUNDATION  
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**Dr.N. SENTHILKUMAR, M.Pharm., Ph.D.,**

**Principal**

**REF.NO: JKKM/PHARM/CEU/REQ/2022/001**

**Date: 08.09.2022**

**From**

Department of Pharmaceutics,  
JKKMMRF'S Annai JKK Sampoorani Ammal College of Pharmacy.  
Komarapalayam, Namakkal [Dist.]  
Tamil Nadu, PIN:638183.

**To**

The Principal,  
JKKMMRF'S Annai JKK Sampoorani Ammal College of Pharmacy.  
Komarapalayam, Namakkal [Dist.]  
Tamil Nadu, PIN:638183.

**Subject: Letter for requesting Permission to Conduct on two days seminar regarding: -  
Respected Sir,**

We are writing this letter to request permission to conduct a Two-days seminar in the SEMINAR HALL on 09/09/2022 & 10/09/2022. We wish to conduct seminar regarding the **Transdermal Drug Delivery - Innovative pharmaceutical Developments Based on Disruption of the Barrier Properties of the Stratum Corneum.**

We request you to kindly permit to conduct seminar program as this would be a great opportunity for Students to learn and that would help a great deal to shape the students.

Looking forward to hearing from you.

Thank you



**Dr. N.SENTHILKUMAR,  
PRINCIPAL**

**J.K.K. MUNIRAJAH MEDICAL RESEARCH FOUNDATION  
At: Annai JKK SAMPOORANI AMMAL COLLEGE OF PHARMACY  
ETHIRMEDU, KOMARAPALAYAM - 638 183.  
NAMAKKAL DISTRICT. TAMILNADU. INDIA.**

**Yours sincerely,**

**Dr.S. CHANDRA.,  
Head of the Department**





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**Dr.N. SENTHILKUMAR, M.Pharm., Ph.D.,**

**Principal**

**DATE: 08.09.2022**

### **CIRCULAR**

This is informed to the B. Pharm-III, IV Students that the following SEMINAR can be conducted by the Department of Pharmaceutics, JKKMMRF'S ANNAI JKK SAMPOORANI AMMAL COLLEGE OF PHARMACY, KOMARAPALAYAM and it will be commenced as per the schedule:

<b>SEMINAR NAME</b>	<b>SCHEDULE</b>	<b>DURATION</b>	<b>VENUE</b>	<b>RESOURCE PERSON</b>
<b>TRANSDERMAL DRUG DELIVERY INNOVATIVE PHARMACEUTICAL DEVELOPMENTS BASED ON DISRUPTION OF THE BARRIER PROPERTIES OF THE STRATUM CORNEUM</b>	<b>09.09.2022 &amp; 10 .09.2022</b>	<b>09.09.2022 FN (3 HOURS) &amp; 10 .09.2022 FN (3 HOURS)</b>	<b>SEMINAR HALL</b>	<b>DR.N. SENTHIL KUMAR &amp; DR.S. CHANDRA</b>

All the above-mentioned students must enroll and actively participate in the course without fail.

**NOTE:** Certificates should be issued to all the students after completion of the course and examination.



**PRINCIPAL**

**Dr. N.SENTHILKUMAR,  
PRINCIPAL**

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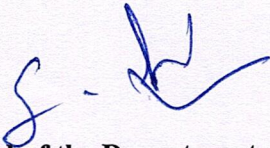
**Dr.N. SENTHILKUMAR, M.Pharm., Ph.D.,**

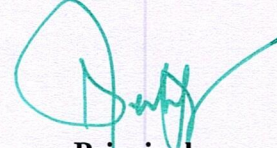
**Principal**

### SYLLABUS

DATE	HOURS	SEMINAR TOPIC	SUB TOPICS	RESOURCE PERSON
09.09.2022 & 10 .09.2022	09.09.2022 FN (3 HOURS)	Transdermal Drug Delivery - Innovative Pharmaceutical Developments Based on Disruption of the Barrier Properties of the Stratum Corneum	Transdermal Drug Delivery (TDD) Brief Review of Skin Structure	Dr. N. SENTHIL KUMAR
	&10 .09.2022 FN (3 HOURS)		Techniques for Enhancement of Skin Permeabilization	Dr.S. CHANDRA

TOTAL HOURS- 6 HOURS

  
Head of the Department

  
Principal

**Dr. N.SENTHILKUMAR,  
PRINCIPAL**

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**JKKMMRF's-ANNAI JKK  
SAMPOORANI AMMAL COLLEGE  
OF PHARMACY**

**Komarapalayam, Namakkal Dt-638183**

**DEPARTMENT OF PHARMACEUTICS**

**TWO DAYS SEMINAR-TOPIC**

**TRANSDERMAL DRUG DELIVERY**

**Innovative Pharmaceutical Developments Based on Disruption of the Barrier**

**Properties of the Stratum Corneum**

**Held on: 09.09.2022 & 10 .09.2022**



**Venue: SEMINAR HALL**



**Dr. N. SENTHILKUMAR,  
PRINCIPAL,**

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**Principal**

### **TWO DAYS SEMINAR ON: TRANSDERMAL DRUG DELIVERY INNOVATIVE PHARMACEUTICAL DEVELOPMENTS BASED ON DISRUPTION OF THE BARRIER PROPERTIES OF THE STRATUM CORNEUM**

#### **ABOUT THE SEMINAR**

The skin offers an accessible and convenient site for the administration of medications. To this end, the field of transdermal drug delivery, aimed at developing safe and efficacious means of delivering medications across the skin, has in the past and continues to garner much time and investment with the continuous advancement of new and innovative approaches. This review details the progress and current status of the transdermal drug delivery field and describes numerous pharmaceutical developments which have been employed to overcome limitations associated with skin delivery systems. Advantages and disadvantages of the various approaches are detailed, commercially marketed products are highlighted and particular attention is paid to the emerging field of microneedle technologies.

Technologies used to modify the barrier properties of the stratum corneum can be divided into passive/chemical or active/physical methodologies .Passive methods include the influencing of drug and vehicle interactions and optimization of formulation, in order to modify the stratum corneum structure Passive methods are relatively easy to incorporate into transdermal patches such as chemical enhancers and emulsions However, the main drawback of passive methods may be a lag time in drug release incurred with obvious negative influence on rapid onset drugs, such as insulin.

#### **Some of these active methodologies**

Ultrasound Devices

Electrical Techniques

a) Electroporation

b) Iontophoresis

Velocity Based Devices Thermal Approaches (Lasers and Radio-Frequency Heating)

Laser Thermal Ablation

Radiofrequency (RF) Thermal Ablation

Mechanical Approaches to Mediate Skin Permeation

Tape Stripping



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**Principal**

### REPORT SUMMARY

DATE: 11.09.2022

Duration of the Course	6 HOURS
Total participants Enrolled	380
Successfully Completed	375
Type of Feedback Assessment	Multiple Choice Questions (MCQ's)
Course Outcome	<ul style="list-style-type: none"><li>• It can improve patient compliance due to the reduction of dosing frequencies and is also suitable for patients who are unconscious or vomiting, or those who rely on self-administration.</li><li>• TDD avoids pre-systemic metabolism, thus improving bioavailability With reference to the use of the skin as a novel site for vaccination strategies, this organ is known to be replete with dendritic cells in both the epidermal and dermal layers which play a central role in immune responses making TDD an attractive vaccination route for therapeutic proteins and peptides The requirement for an inexpensive and non-invasive means of vaccination</li><li>• Especially in the developing world has given rise to substantial research focused on the development of simple, needle-free systems such as TDD for vaccination purposes.</li></ul>

### Feedback Question Analysis – Question Asked-Feedback Rating

1.Satisfaction	6.Like to learn more about this topic
2.Clarity	7.Rate the content of the slides/virtual aid
3. Percentage of the information was new	8.Accuracy of the sessions
4.Informative	9.Session expectations
5.Technical issues	10.Rate the content of the seminar



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**Principal**

DEPARTMENT OF PHARMACEUTICS

### STUDENT FEEDBACK FORM

NAME OF STUDENT:

COURSE :

SEMINAR TOPIC :

REGISTRATION NO. :

YEAR & SEMESTER:

DATE & TIME:

1. Overall, how satisfied were you with this seminar?

- Very satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very dissatisfied

2. How clear were the ideas and concepts we presented?

- Extremely clear
- Very clear
- Moderately clear
- Not very clear
- Not at all clear

3. What percentage of the information was new to you?

- 100%
- 75%
- 50%
- 25%
- 0%



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4. **How informative did you find our seminar?**
- Extremely Informative
  - Very Informative
  - Moderately Informative
  - Not very informative
  - Not informative at all
5. **Were there any technical issues that prevented you from seeing or hearing the seminar?**
- Yes
  - No
6. **Would you like to learn more about this topic?**
- Yes
  - No
7. **Rate the content of the slides/virtual aid?**
- Extremely clear
  - Very clear
  - Moderately clear
  - Not very clear
  - Not at all clear
8. **How accurate was the session description?**
- Extremely clear
  - Very clear
  - Moderately clear
  - Not very clear
  - Not at all clear
9. **How did the session compare to your expectations?**
- Excellent
  - Good
  - Fair
  - Poor
  - Not at all clear
10. **How Would you rate the content of the seminar?**
- 1
  - 2
  - 3
  - 4
  - 5



**Student Name with Signature**

  
**Dr. N.SENTHILKUMAR,**  
**PRINCIPAL**

**JKK MUNIRAJAH MEDICAL RESEARCH FOUNDATION**  
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**Principal**

### STUDENTS FEEDBACK ANALYSIS

DATE: 10 .09.2022

S.NO	QUESTION DESCRIPTION	ANSWERS	MARKS	TOTAL MARKS
1	Satisfaction	Very satisfied	5	5
		Satisfied	3	
		Neutral	2	
		Dissatisfied	1	
		Very dissatisfied	0	
2	Clarity	Extremely clear	5	5
		Very clear	4	
		Moderately clear	2	
		Not very clear	1	
		Not at all clear	0	
3	Percentage of the information was new	100%	5	5
		75%	4	
		50%	3	
		25%	2	
		0%	1	
4	Informative	Extremely Informative	5	5
		Very Informative	3	
		Moderately Informative	2	
		Not very informative	1	
		Not informative at all	0	
5	Technical issues	Yes	5	5
		No	0	
6	Like to learn more about this topic	Yes	5	5
		No	0	
7	Rate the content of the slides/virtual aid	Extremely clear	5	5



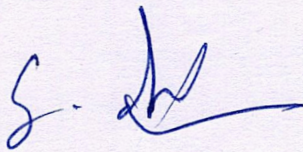
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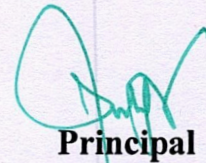


		Moderately clear	2	
		Not very clear	1	
		Not at all clear	0	
8	Accuracy of the sessions	Extremely clear	5	5
		Very clear	3	
		Moderately clear	2	
		Not very clear	1	
		Not at all clear	0	
9	Session expectations	Excellent	5	5
		Good	3	
		Fair	2	
		Poor	1	
		Not at all clear	0	
10	Rate the content of the seminar	1	1	5
		2	2	
		3	3	
		4	4	
		5	5	

**Total marks = 50**



**Head of the Department**



**Principal**

**Dr. N.SENTHILKUMAR,  
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**Principal**

### LIST OF PARTICIPANTS

S.NO	NAME OF THE STUDENTS	YEAR	COURSE
1.	HIRUTHIKA S	SEM-III	B.PHARM
2.	INDHUMATHI A	SEM-III	B.PHARM
3.	ISAIMOZHI M	SEM-III	B.PHARM
4.	IYYAPPAN M	SEM-III	B.PHARM
5.	JAGATHISHVARAN P	SEM-III	B.PHARM
6.	JEEVA N R	SEM-III	B.PHARM
7.	JEEVADHARSHINI S	SEM-III	B.PHARM
8.	KALAISELVAN S	SEM-III	B.PHARM
9.	KANISHKUMAR P	SEM-III	B.PHARM
10.	KARTHICK RAJU S	SEM-III	B.PHARM
11.	KAVINKUMAR G	SEM-III	B.PHARM
12.	KAVISELVAN R	SEM-III	B.PHARM
13.	KAVYASRI S	SEM-III	B.PHARM
14.	KIRUTHIGA T	SEM-III	B.PHARM
15.	KOWSIHA S	SEM-III	B.PHARM
16.	MADHAN KUMAR G	SEM-III	B.PHARM
17.	MADHUMITHA K	SEM-III	B.PHARM
18.	MANOJKUMAR M	SEM-III	B.PHARM
19.	MEIVEL P	SEM-III	B.PHARM
20.	MOHAN R	SEM-III	B.PHARM
21.	NADHISH R	SEM-III	B.PHARM
22.	NANDHINI N M	SEM-III	B.PHARM
23.	NANDHINI R	SEM-III	B.PHARM
24.	NAVEEN S	SEM-III	B.PHARM
25.	NAVEEN KUMAR M	SEM-III	B.PHARM
26.	NAVEENA K	SEM-III	B.PHARM



**Dr. N.SENTHILKUMAR,**  
**PRINCIPAL**

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27.	NEHAA K	SEM-III	B.PHARM
28.	PABITHA K R	SEM-III	B.PHARM
29.	POOVARASAN P	SEM-III	B.PHARM
30.	PRAKASH S	SEM-III	B.PHARM
31.	PRAVEEN G	SEM-III	B.PHARM
32.	PRAVIN G K	SEM-III	B.PHARM
33.	PREMKUMAR U	SEM-III	B.PHARM
34.	PUGAZENDHI S	SEM-III	B.PHARM
35.	PURUSOTHAMARAJ S	SEM-III	B.PHARM
36.	PUVIYARASU R	SEM-III	B.PHARM
37.	RAMKUTTI M	SEM-III	B.PHARM
38.	RUTHCHRISTYKALA B	SEM-III	B.PHARM
39.	SAESHANANDA G	SEM-III	B.PHARM
40.	SAJITH Y	SEM-III	B.PHARM
41.	SALEEM A	SEM-III	B.PHARM
42.	SANJAI K	SEM-III	B.PHARM
43.	SANTHOSH S R	SEM-III	B.PHARM
44.	SANTHOSH S	SEM-III	B.PHARM
45.	SETHUPATHY M	SEM-III	B.PHARM
46.	SIVAPRAKASAM C	SEM-III	B.PHARM
47.	SIVASURYA P	SEM-III	B.PHARM
48.	SOUNDHIRARAJAN K	SEM-III	B.PHARM
49.	SOWBARNICA S	SEM-III	B.PHARM
50.	SOWMIKA M	SEM-III	B.PHARM
51.	SRIRAM L	SEM-III	B.PHARM
52.	SUDHARSANA R	SEM-III	B.PHARM
53.	SURYA PRANESH V R	SEM-III	B.PHARM
54.	TAMILSELVAN R	SEM-III	B.PHARM
55.	THILAGAVATHI T	SEM-III	B.PHARM
56.	THILAGAVATHY K	SEM-III	B.PHARM
57	VASANTHAKUMAR V	SEM-III	B.PHARM



Dr. N.SENTHILKUMAR,  
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# J.K.K. MUNIRAJAH MEDICAL RESEARCH FOUNDATION

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Approved by : Pharmacy Council of India. New Delhi & Affiliated to The Tamilnadu Dr. M.G.R Medical University, Chennai.

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**Dr.N. SENTHILKUMAR, M.Pharm., Ph.D.,**

**Principal**

**SEMINAR TITLE -TRANSDERMAL DRUG DELIVERY**

**INNOVATIVE PHARMACEUTICAL DEVELOPMENTS BASED ON DISRUPTION OF  
THE BARRIER PROPERTIES OF THE STRATUM**

**SEMINAR PHOTO**



**Dr. N.SENTHILKUMAR,**  
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**NAMAKKAL DISTRICT. TAMILNADU. INDIA.**





# JKKMMRF'S ANNAI JKK SAMPOORANI AMMAL COLLEGE OF PHARMACY

## CERTIFICATE

OF PARTICIPATION

**DEPARTMENT OF PHARMACEUTICS**

TWO DAYS SEMINAR ON

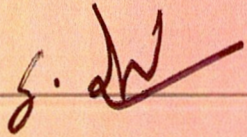
TRANSDERMAL DRUG DELIVERY SYSTEM

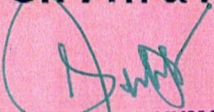
This Certificate Is Proudly Presented To

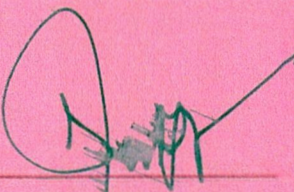
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**HAS APPRECIATED HIS/HER CONTRIBUTION IN INNOVATIVE PHARMACEUTICAL DEVELOPMENT  
BASED ON DISTRIBUTION OF THE BARRIER PROPERTIES OF THE STRATUM CORNEUM IN THE TWO  
DAYS SEMINAR HELD ON 9TH & 10TH SEP 2022**



  
organizing secretary

  
Dr. N.SENTHILKUMAR,  
PRINCIPAL,  
JKK MUNIRAJAH MEDICAL RESEARCH FOUNDATION  
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NAMAKKAL DISTRICT, TAMILNADU.

  
principal