



# UBA

1821 Universidad  
de Buenos Aires



## Congreso Nacional de Ciencia Reguladora

Nuevos caminos y desafíos en Productos para la Salud

# *Ciclo de vida del medicamento*



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**.UBA** *farmacia y bioquímica*

FACULTAD DE FARMACIA Y BIOQUÍMICA

# Medicamentos

Comprimidos  
Cápsulas



Suspensión  
oral



Solución  
oftálmica



Solución  
oral



Cremas



Inyectable  
i.m.



Supositorios



Óvulos  
vaginales



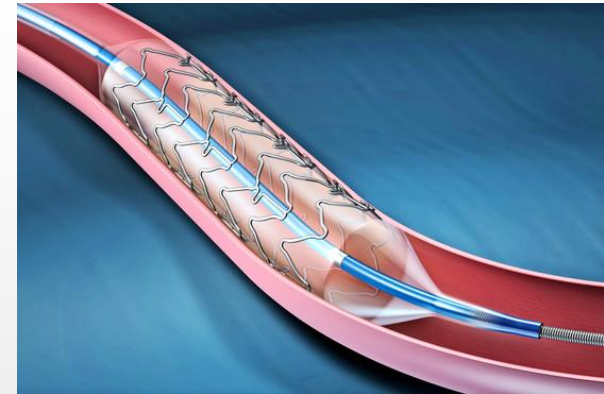
# Medicamentos



Parches



Implantes sc.



Estent + fármaco

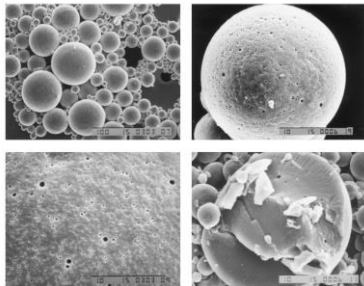
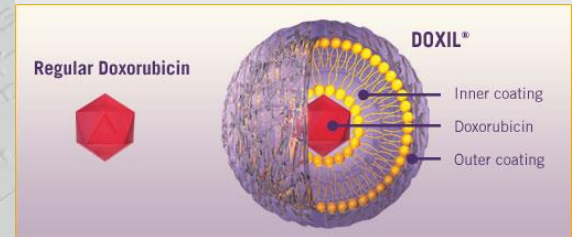


Fig. 3. Scanning electron micrographs of the surface and cross-section of liposome-1-month depot PLGA microspheres (Liposome Depot®) [36].

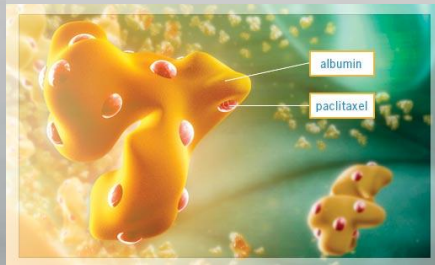
Micropartículas



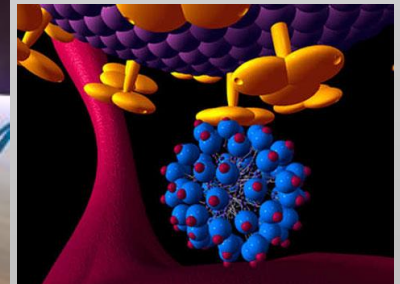
(doxorubicin HCl liposome injection)



Liposomas



Nanopartículas



Dendrimeros





4 a 5 años

# Ciclo de vida del medicamento



Investigación básica  
10.000 – 50.000  
compuestos

1 a 2 años



Investigación preclínica  
30 – 250  
compuestos

6 a 8 años



Investigación clínica  
5 compuestos

1 a 2 años



Registro y comercialización  
1 compuesto

~ 15 años y U\$S 800.000.000

# Un largo camino...

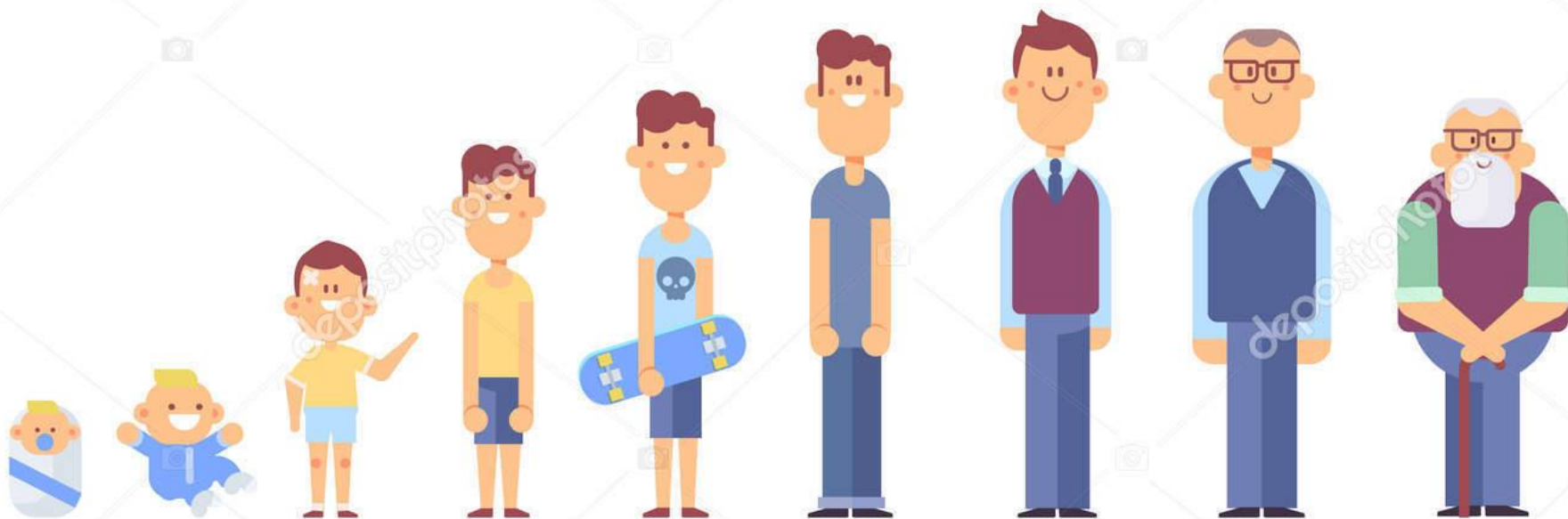




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# Reposicionamiento de fármacos

## ¿Nueva estrategia?

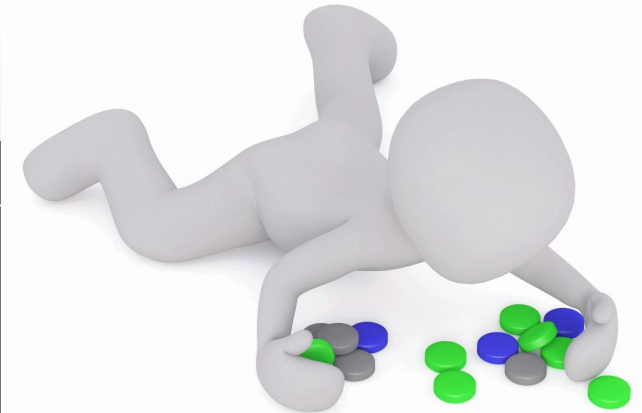
Drug Discovery Today • Volume 00, Number 00 • December 2019

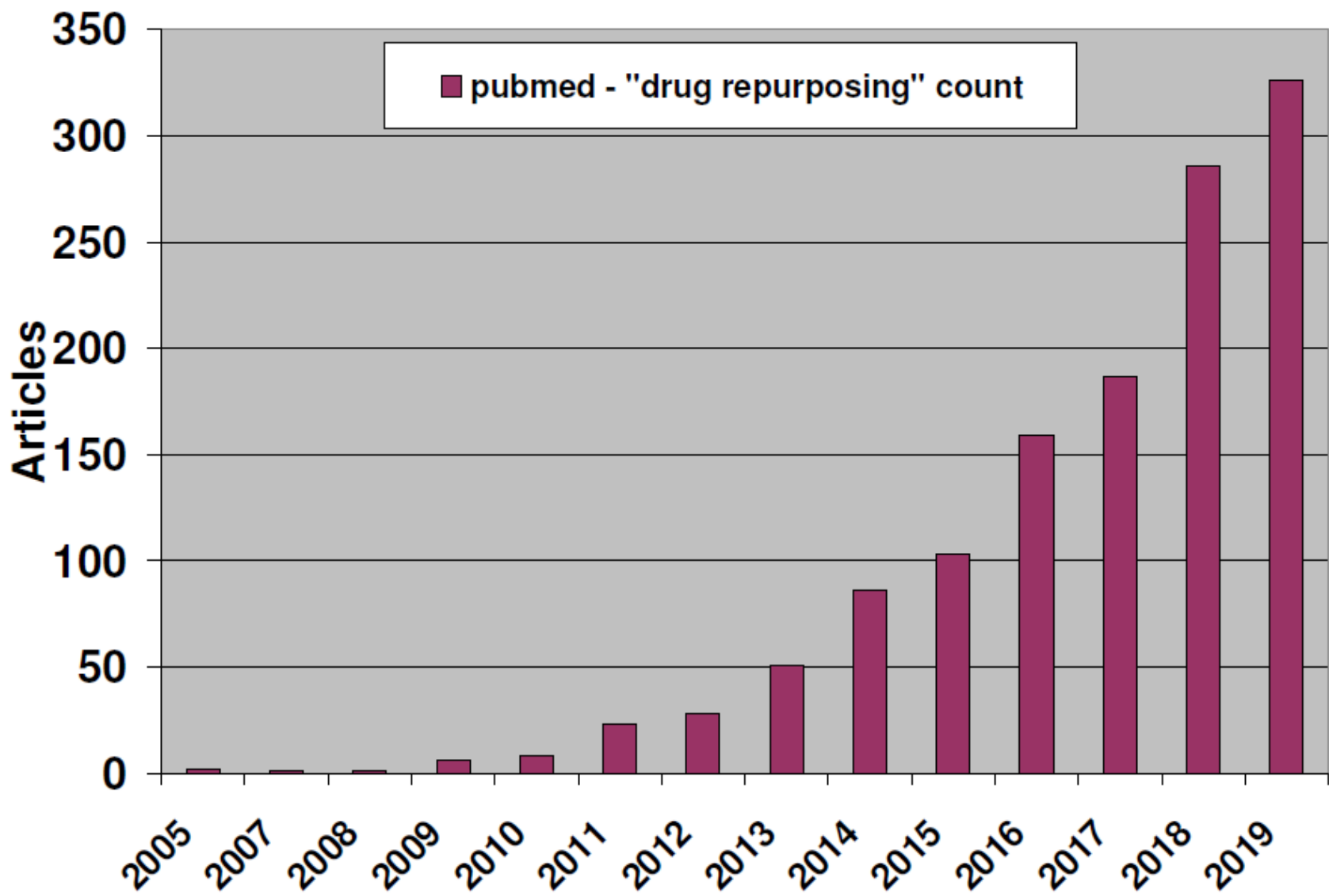


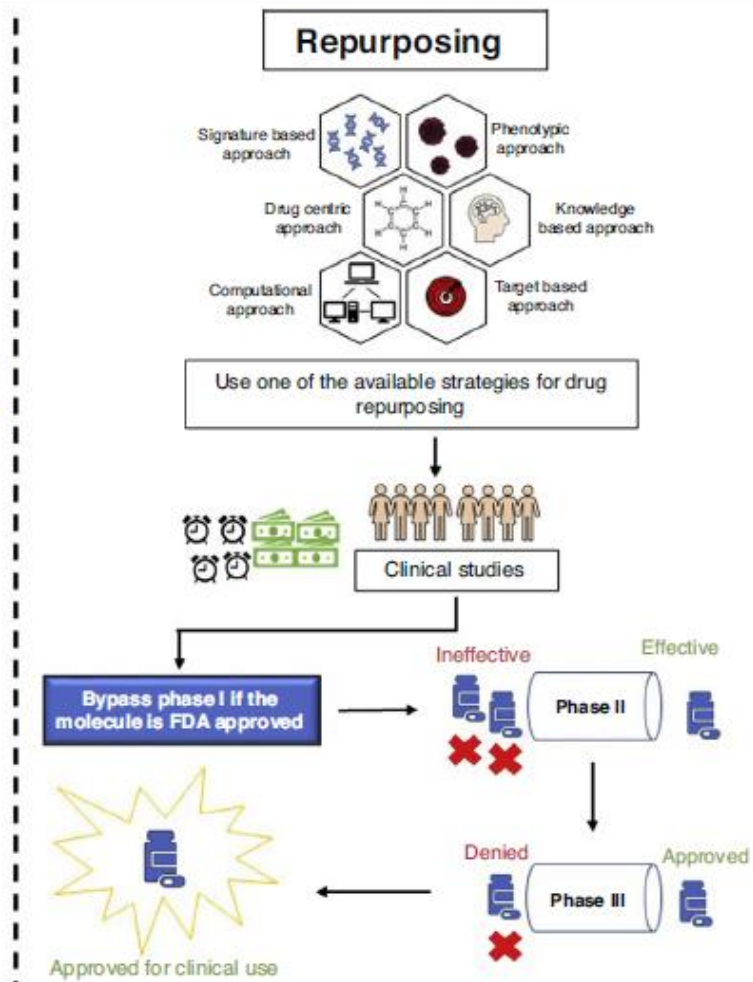
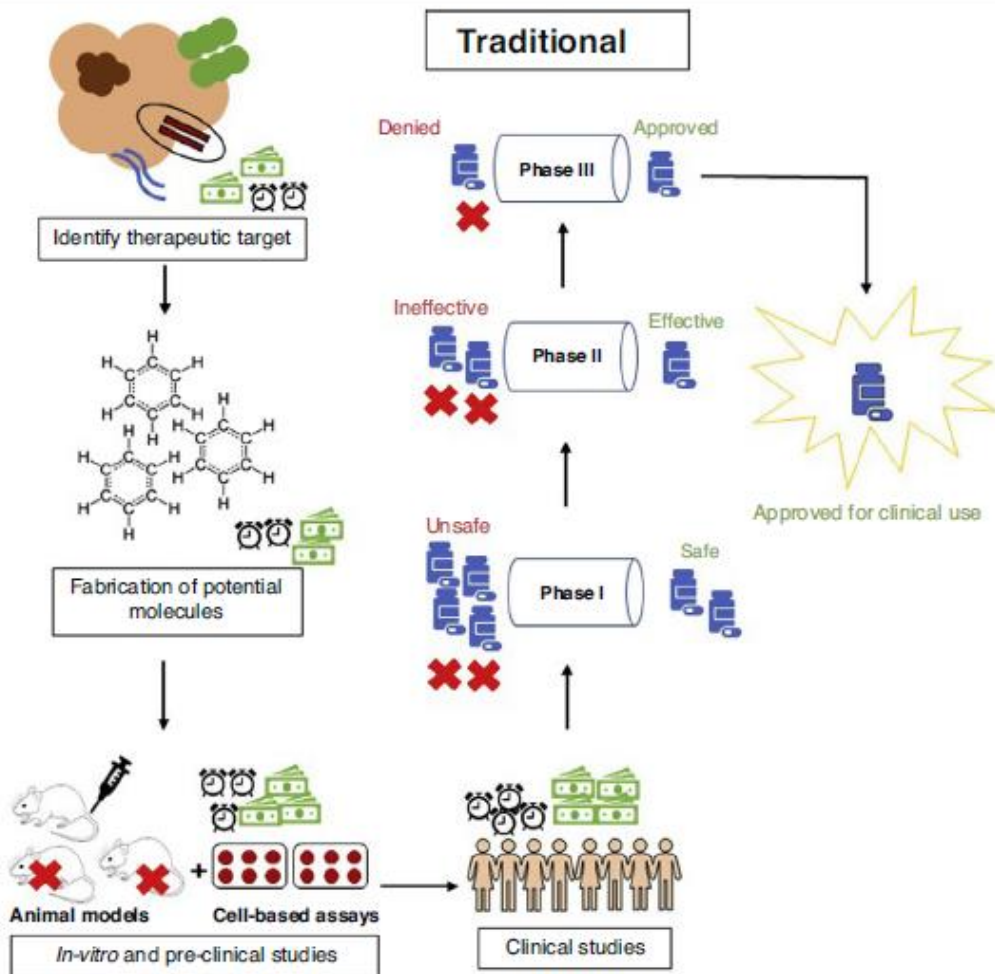
## Drug repurposing: a promising tool to accelerate the drug discovery process

**Vineela Parvathaneni, Nishant S. Kulkarni, Aaron Muth and Vivek Gupta**

Department of Pharmaceutical Sciences, College of Pharmacy and Health Sciences, St John's University, Queens, NY 11439, USA







*Drug Discovery Today*



# Ejemplos

**TABLE 2**

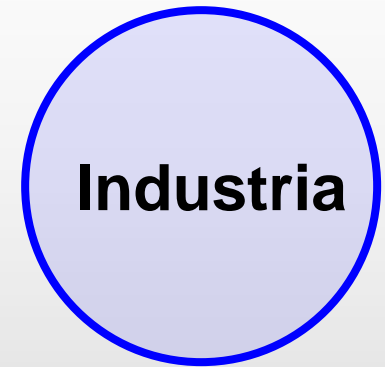
**List of approved and under-studied repurposed drugs**

No.	Drug name	Original indication	New indication	Mechanism of action	Status of study
1	Itraconazole	Antifungal	Prostate cancer	Reducing prostate-specific antigen (PSA) levels	Phase II
2	Metformin	Type II diabetes	Advanced prostate cancer	Inhibition of the mammalian target of rapamycin complex 1 (mTORC1) pathway	Phase II
3	Aspirin	Fever and pains	Melanoma	Stop the growth of tumor cells by blocking some of the enzymes needed for cell growth	Phase II
4	Sildenafil	Angina pectoris	Erectile dysfunction	Phosphodiesterase type 5 (PDE5) inhibition	Approved
5	Raloxifene	Osteoporosis	Breast cancer	Estrogen-antagonistic effects	Approved
6	Thalidomide	Morning sickness	Multiple myeloma	Antiangiogenic	Approved
7	Tamoxifen	Metastatic breast cancer	Bipolar disorder	Anti-estrogenic	Approved
8	Rapamycin	Prevents organ transplant rejection	Autoimmune lymphoproliferative syndrome (ALPS)	Immunosuppressant	Approved
9	Minoxidil	Antihypertensive	Hair regrowth	Stimulates follicle movement	Approved

**Table 3**List of repurposed drugs undergoing clinical trials in cancer treatment<sup>a,b</sup>.

Drug	Numbers of trials	Original Indication	New Indication	Identifier	Study phase
Acetylsalicylic acid	59	Pain, fever, inflammation and blot clotting	Colon cancer	NCT02301286	Phase 3
			Stage II and III Node Positive HER2 Negative Breast Cancer	NCT02927249	Phase 3
			Colorectal cancer	NCT00331786	Phase 1
Digoxin	13	Heart conditions	Recurrent Prostate Carcinoma. Stage I, IIA, IIB and III Prostate Cancer	NCT02420652	Phase 2
			Head and neck cancer	NCT02906800	Phase 1 and 2
Disulfiram	13	Alcoholism	Non small cell lung cancer	NCT00281021	Phase 2
			Glioma Glioblastoma	NCT02678975	Phase 2 and 3
Itraconazole	33	Fungal infections	Non small cell lung cancer	NCT00312819	Phase 2 and 3
			Non small cell lung cancer	NCT02357836	Early phase 1
			Advanced Non small cell lung cancer	NCT02157883	Phase 1

# *¿Puede ser una oportunidad?*





***Muchas gracias!!!***

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