

Chemistry Project

Sildenafil

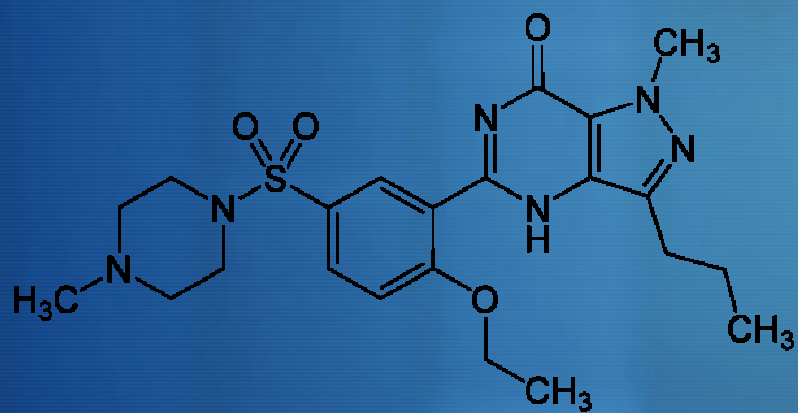
Group members: Cheng Siu Ting

Tsang Ming Lap

Wong Wai Ki

Introduction:

- ◆ Sildenafil (Viagra)
- ◆ Treat erectile dysfunction and pulmonary arterial hypertension (PAH)
- ◆ 1-[[3-(6,7-dihydro-1-methyl-7-oxo-3-propyl-1*H*-pyrazolo[4,3-*d*]pyrimidin-5-yl)-4-ethoxyphenyl]sulfonyl]-4-methylpiperazine citrate



Compound Discovery:

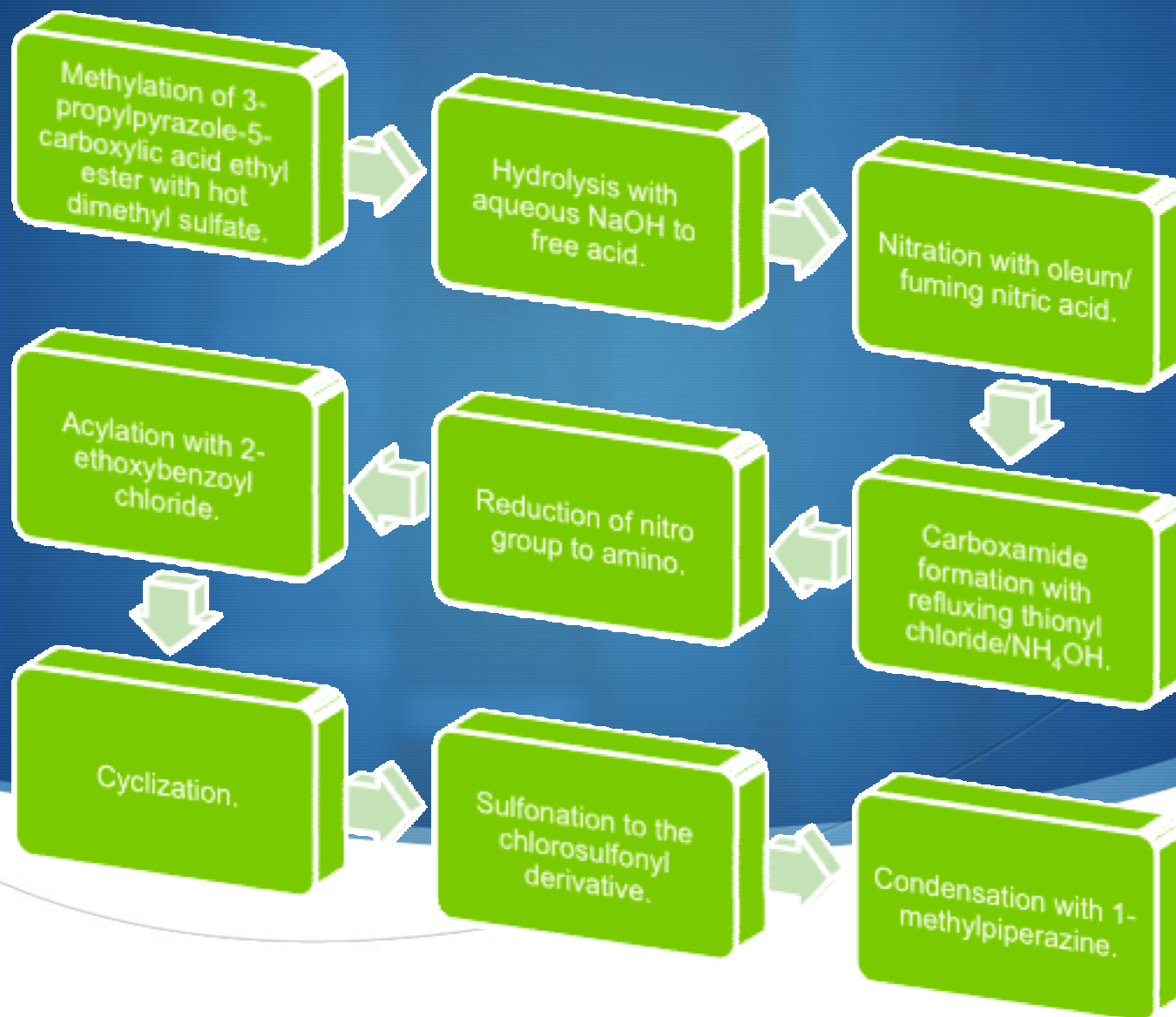
- ◆ initially studied for use in hypertension (high blood pressure) and angina pectoris (a symptom of ischaemic heart disease).
- ◆ Phase I clinical trials reveal that the drug had little effect on angina, but that it could induce marked penile erections.
- ◆ decided to market it for erectile dysfunction, rather than for angina

Molecular Modification:

- ◆ Active ingredient : sildenafil citrate
- ◆ Inactive ingredients: microcrystalline cellulose, anhydrous dibasic calcium phosphate, croscarmellose sodium, magnesium stearate, hypromellose, titanium dioxide, lactose, triacetin, and FD & C Blue #2 aluminum lake.



Formulation development:



Adverse effects :

Adverse Event	Percentage of Patients Reporting Event
Headache	16%
Flushing	10%
Dyspepsia	7%
Nasal Congestion	4%
Urinary Tract Infection	3%
Abnormal Vision	3%
Diarrhea	3%
Dizziness	2%
Rash	2%

Approval for market:

- ◆ cure organic, psychogenic, and mixed erectile dysfunction.
- ◆ first oral therapy indicated for erectile dysfunction
- ◆ works only in response to sexual stimulation and restores natural function.
- ◆ nonsurgical and noninvasive
- ◆ are taken only on an as-needed basis as a single dose