

*Tamar Chachibaia, MD*

PhD exchange doctorate TSU

Doctoral research project in new drug development for medical application

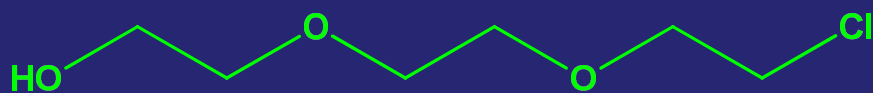
**Supervisor: Professor titular Eduardo Fernandez-Megia;**

**Mentor: Juan Francisco Correa, PhD**

**Synthesis of Triazole containing  
dendrimers using catalyst free termal  
Azide–Alkene Cycloaddition  
'click' reaction**

**17 January 2013**

# Synthesis of Repeated Unit



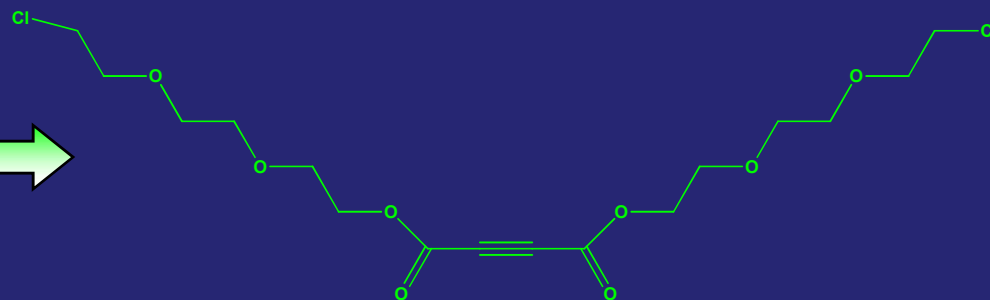
2-(2-(2-chloroethoxy)ethoxy)ethanol

**Mflux**

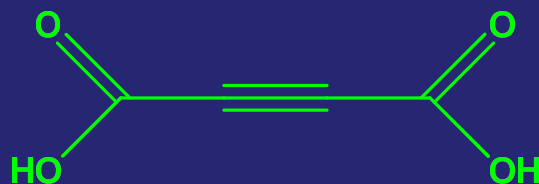
**Toluene**



**H<sub>2</sub>SO<sub>4</sub>**



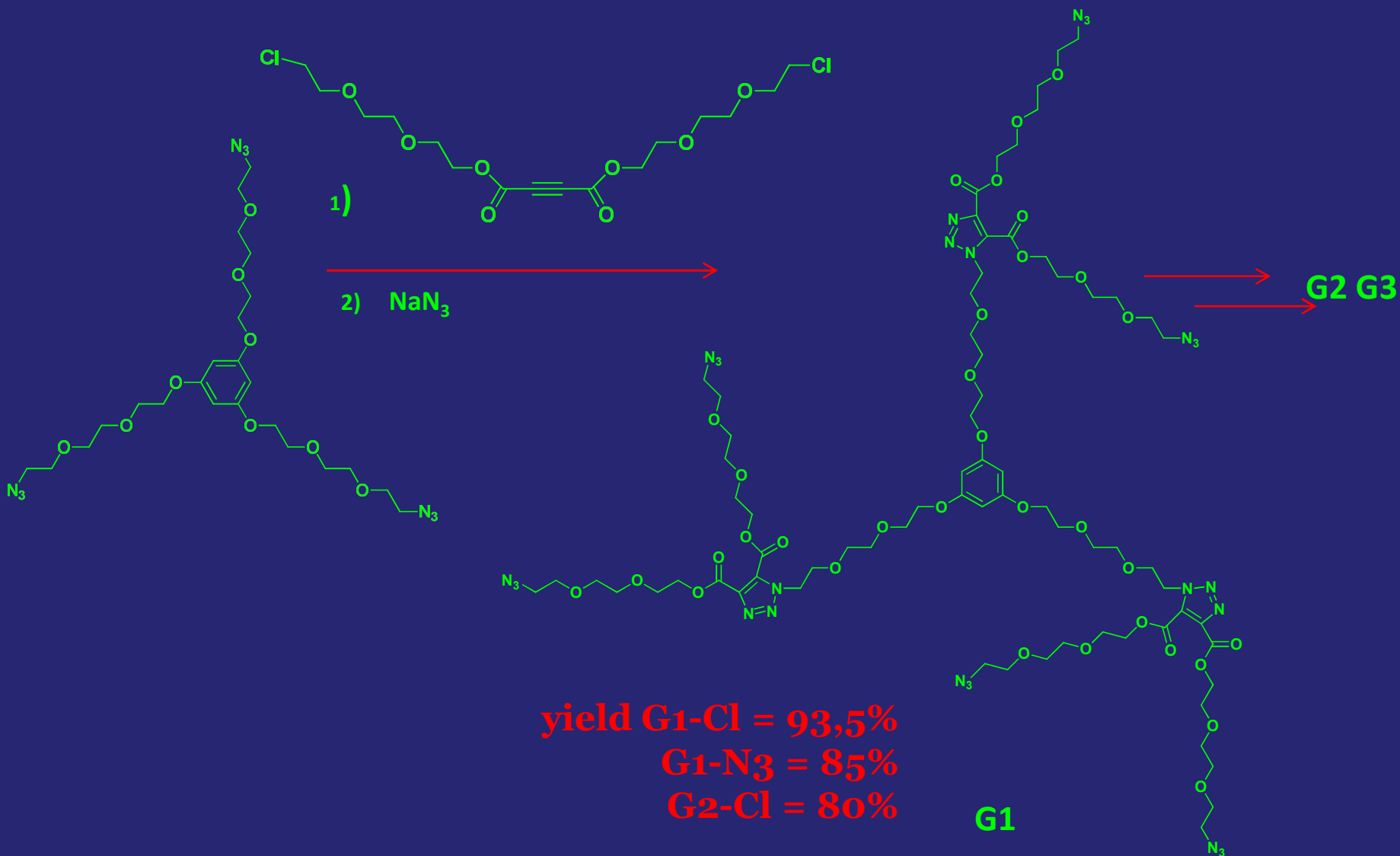
bis(2-(2-(2-chloroethoxy)ethoxy)ethyl) but-2-yne-1,4-dioate



Acetylen dicarboxylic acid

**Yield = 66%**

# Growth of Generations G1-G2-G3



# Solubility of dendrimer G 1

**Dendrimers were solved first in DMSO to obtain 100% compound, then added 100 ml of water.**

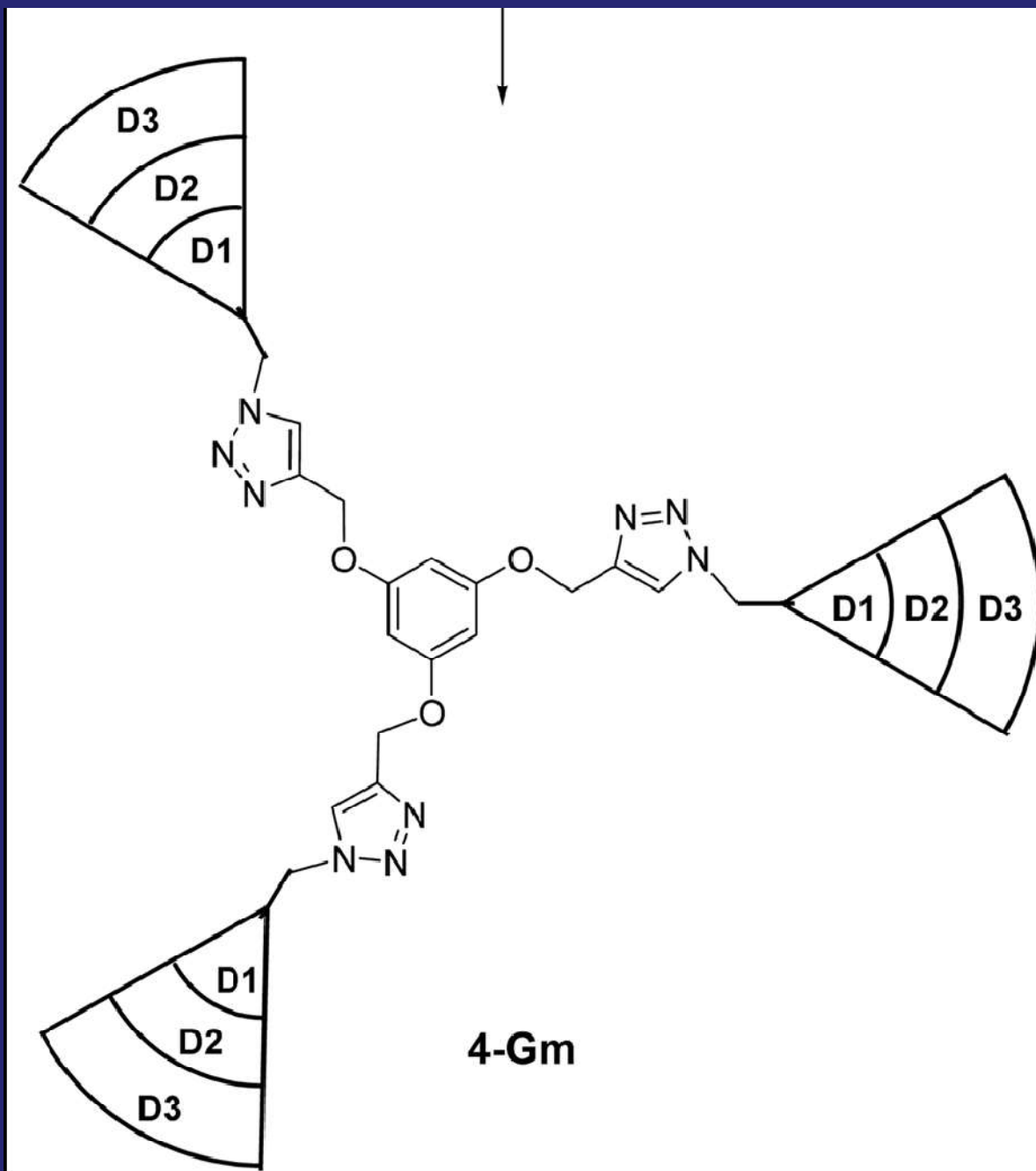
**Dendrimer is water insoluble.**

# Synthetic strategy for dendrimers linked by the triazole units.



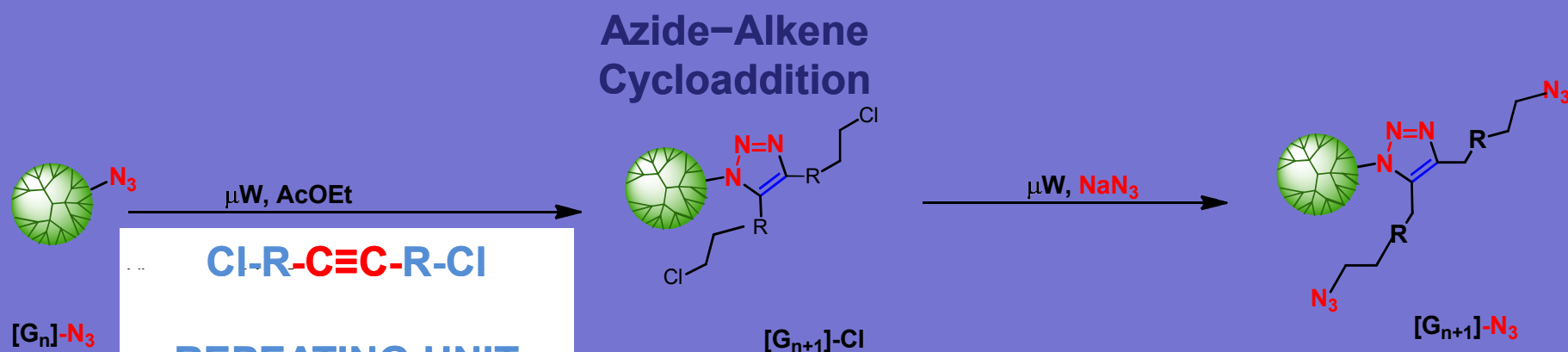
Demonstration of 1,2,3-triazol containing dendrimer in each generation.





## 1,2,3-Triazole containing DENDRIMER SYNTHESIS

cycloaddition between the terminal azide group (either present on core and then in dendrimer corona) and the alkyne of the repeating unit to obtain **1,2,3, triazole ring** in each generation



**REPEATING UNIT**  
containing internal  
(or sometimes  
terminal)  
**alkyne group**

**SUBSTITUTION OF CHLORINE** by  
**SODIUM AZIDE (NaN<sub>3</sub>)**

**μW- MICROWAVE IRRADIATION**

**'click' cycloaddition reaction with 1,2,3, triazole ring formation in each generation by catalyst free reaction between repeated unit and core, then subsequent generations obtained similarly.**



*Thank you.*

*Questions?????*