

In summary, a number of novel polyfluorinated 10-(1*H*-1,2,3-triazol-1-yl)pyrido[1,2-*a*]indole green-emitting fluorophores have first been synthesized using combine strategy including S<sub>N</sub><sup>H</sup> reactions in 3-(pyridin-2-yl)-1,2,4-triazines followed by aryne-mediated domino transformations of 5-(perfluorophenyl)-3-(pyridin-2-yl)-1,2,4-triazines.

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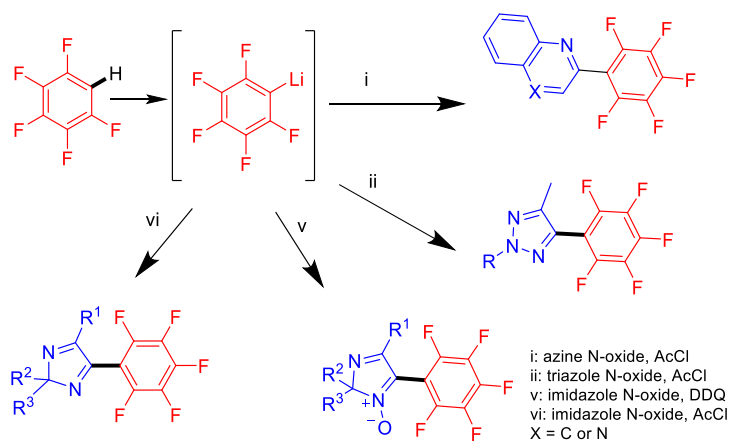
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### DIRECT C-LI/C-H COUPLING OF C<sub>6</sub>F<sub>5</sub>LI WITH AZINES AND AZOLES N-OXIDES AS EFFICIENT APPROACH TOWARD TO POLYFLOORINATED AZAHETEROCYCLES\*

**Keywords:** C-C coupling, nucleophilic substitution of hydrogen, fluorine, fluorarenes.

Polyfluorinated arenes, possessing a special structural organization and unique physicochemical properties, are one of the most common scaffolds in various biologically active molecules, agrochemicals, materials and substances for molecular electronics. It is known that the introduction of fluorine atoms or fluorinated building blocks increases the oxidative stability of organic molecules and, thus, prevents unwanted degradation transformations.



Scheme 1. Direct C-Li/C-H Coupling of C<sub>6</sub>F<sub>5</sub>Li With Azines and Azoles N-Oxides as Efficient Approach Toward to Polyfluorinated Azaheterocycles

The investigating for new polyfluorinated-containing heterocyclic systems is one of the key challenges for synthetic organic chemistry, while the developed approaches should be effective in terms of pot, atom, and step economy (PASE), as well as attractive as promising green chemistry-oriented methods. In this regard, one of the most promising synthetic techniques is the methodology of direct C-H functionalization. In particular, the reactions of nucleophilic hydrogen substitution ( $S_N^H$ ) in heterocyclic substrates are widely known as highly effective synthetic techniques for the construction of new C-C bonds. It should be noted that the combinations non-catalyzed by C-H / C-Li transition metals are a special case of  $S_N^H$  transformations, in which the nucleophilic component, the lithium derivative, is generated in situ, which avoids the loss of the target product at intermediate stages and carries out synthesis in an atom-economical one pot option.

As a result, a transition metal-free C-H/C-H and C-Li/C-H coupling was successfully applied to azines and azoles N-oxides and pentafluorophenyllithium in the synthesis of novel azaheterocycles derivatives, which are interesting in various field of application (medicinal and coordinational chemistry, photophysical materials etc).

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