

		[Template to be used only for the admission request to the selection procedure of a PhD programme on the dedicated online platform PICA]
Curriculum Vitae Europass		
Personal information		
Name(s) / Surname(s)	Name(Alessio) Surname(Regni)	
Address(esd)		
Telephone(s)		Mobile: [redacted]
Fax		
E-mail	[redacted]	
Citizenship	[redacted]	
Date of birth	[redacted]	
Sex	[redacted]	
Work experience		
Dates	From 01/07/2019 to 30/09/2019	
Occupation or position held	Member staff, University of Manchester (UK), (ERASMUS traineeship)	
Main activities and responsibilities	Activity of research to develop, optimise and “scope” a new methodology to generate alfa-aminoalkyl radicals based on Photoredox catalysis. With responsibilities concerning the activity of research, development of methodology, autonomy in problem solving, Team communication, scheduling experiments, results presentation and evaluation of data.	
Name and address of employer	Daniele Leonori, University of Manchester (UK), Oxford Rd, M13 9PL.	
Type of business or sector	Organic Chemistry, Research	
Dates	From 2016 To 2018 (Seasonal summer)	
Occupation or position held	Lifeguard, at the swimming pool of Gualdo Tadino (Pg) and Spoleto (Pg)	

Main activities and responsibilities	Work as a qualified Lifeguard. Monitoring of pool and grass side, consumer assistance and security assurance of swimmers by providing them first aid.				
Name and address of employer	Azzurra SCSD, Gualdo Tadino (PG), Via Flaminia km 186,7, 06023				
Type of business or sector	Rescue and first aid				
Education and training					
Dates	From 2015 to 2020				
Title of qualification awarded	Master's Degree in Medicinal Chemistry (110 with honours and special mention)				
Main subjects / occupational skills covered	Comprehending of mechanisms of action of all drugs used in therapy, pathogenesis of different diseases, studying and researching new drugs, considering each different step of their development, from first synthesis, characterization, and lead/hit studies, SAR, QSAR, to formulation, toxicology and pharmacology, to being placed on the market and available in pharmacy.				
Organisation providing education and training	University of Urbino "Carlo Bo"				
Level in EQF or national classification	EQF Level 7, ISCED 727 - Pharmacy				
Personal skills					
Mother tongue	Italian				
Foreign languages					
Self-assessment	Understanding		Speaking		Writing
<i>European level</i> (*)	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
French	B2	B2	B2	B2	B2
(*) <i>Common European Framework of Reference for Languages</i>					
Communication skills					
I consider team working as the main skill to achieve every goal, therefore having a good relationship with all colleagues is fundamental. I am a friendly person, and generally for me it's really easy to build new relationships with strangers, especially in contexts of collaboration. During my experiences, I have seen a lot of times in work relationships becoming a true friendship from time to time.					

Organisational / managerial skills	I have good management skills, especially in workplace. I'm used to organize step by step my goals within time. I take care in special way of my workspace spending time to clean up and in space organization. The punctuality is a fundamental skill, indeed I usually arrive at work or at meetings a few minutes early.
Job-related skills	During the ERASMUS traineeship and university period I have acquired different skills. One of them is full autonomy in Medicinal/Organic Chemistry research laboratory. Reactions set-up, optimisation of reactions, scope, purification of crude (Column chromatography, TLC, Extraction, Filtration), analysis and characterization (H NMR, C NMR, HPLC, TLC MS, GCMS, GC...), communications and elaboration of data, planning of investigation strategy step by step, bibliography documentation (Scifinder, Reaxys, Scopus...) and comprehension/use of almost all concerning this research field. In addition, I can use programs like Chemdraw, program of stock management, Mastrenova, and generic software like Word, PowerPoint, Excel (and similar). I spend some time to managing pages of social-network on Facebook and Instagram.
Other skills	I am really curious, with a great passion for research in Medicinal Chemistry. I learn quickly, and I always try to understand and adapt new things and the deep logic of what I do. I have acquired some soft skills during my 2 international experiences (France, and UK) and during "Urbino contamination Lab" (a course of a semester based on comprehension and development of soft skills, organised by University). On these occasions, I developed skills like, autonomy, problem solving, Team Working, communication, working by steps, data managing, leadership, self-confidence, gumption and to stay focus and updated.
Driving licence	B
Additional information	Thesis: 1) Radicali Amminoalchilici come agenti Halogen-atom transfer per l'attivazione di alchile e aril alogeni Publications: 1) Aminoalkyl radicals as halogen-atom transfer agents for activation of alkyl and aryl halides, A. Regni, T. Constantin, F. Juliá, D. Leonori et al, <i>Science</i> 28 Feb 2020: Vol. 367, Issue 6481, pp. 1021-1026.
Attachments	1) Thesis abstract

1)

Corso di Laurea Magistrale in Chimica e Tecnologia Farmaceutiche

Relatore: Chiar.mo Prof.
GIOVANNI PERSANTI

Tesi di laurea di:
ALESSIO REGNI

Radicali α -Aminoalchilici come agenti Halogen-Atom Transfer per l'attivazione di alchil e aril alogenuri.

La capacità della luce di interagire con la materia ha portato allo sviluppo della fotochimica e alle sue relative applicazioni tecniche e pratiche.^[1] La fotochimica, offre un valido contributo anche nel campo della sintesi organica: essa infatti permette di realizzare, in maniera efficiente e sostenibile, processi chimici spesso proibiti per via termica, sfruttando le profonde modifiche delle proprietà chimico-fisiche delle molecole nello stato eccitato rispetto allo stato fondamentale.^[2] I recenti progressi nel campo sono stati principalmente dovuti alla comprensione e applicazione della fotoredox catalisi.^[3] Questa strategia si basa sull'abilità di alcuni complessi di metalli di transizione (ad esempio, Ru- e Ir-polipiridil derivati), sali inorganici (ad esempio: anione decatungstato) o coloranti organici (ad esempio: cianoareni), usati in quantità catalitica, di convertire a temperatura ambiente la luce visibile in energia chimica inducendo/provocando il trasferimento di un singolo elettrone (SET, Single-Electron Transfer oppure HAT, Hydrogen-Atom Transfer) da o verso substrati organici inattivi/stabili generando intermedi radicalici reattivi, evitando l'utilizzo di reagenti pericolosi (es. AIBN [2,2'-azobis(isobutirronitrile)] e BEt_3 (triethylborane)) e tossici (es. stannani), alte temperature e irraggiamento ad alta energia (es. UV).^[4] Vari substrati/gruppi funzionali, aventi un sito redox, sono stati impiegati (acidi carbossilici, attivati legami C-H, alogenuri benzilici e acilici, etc.) mentre l'utilizzo di alogenuri alchilici e arilici non attivati, è rimasto largamente inesplorato, malgrado l'alta disponibilità commerciale, probabilmente dovuto al loro basso potenziale di riduzione ($E_{\text{red}} < -2 \text{ V}$ versus SCE).^[5] In questo lavoro di tesi, si è esplorato l'omolitica attivazione di alogenuri alchilici e arilici (i.e. generando intermedi radicalici al carbonio sia sp^3 che sp^2) tramite halogen-atom transfer (XAT) (Figura, 1A), sfruttando i radicali nucleofili α -amminoalchilici, facilmente generabili da processi ossido-riduttivi foto-indotti (SET o HAT) di semplici ammine terziarie. (Figura, 1B)

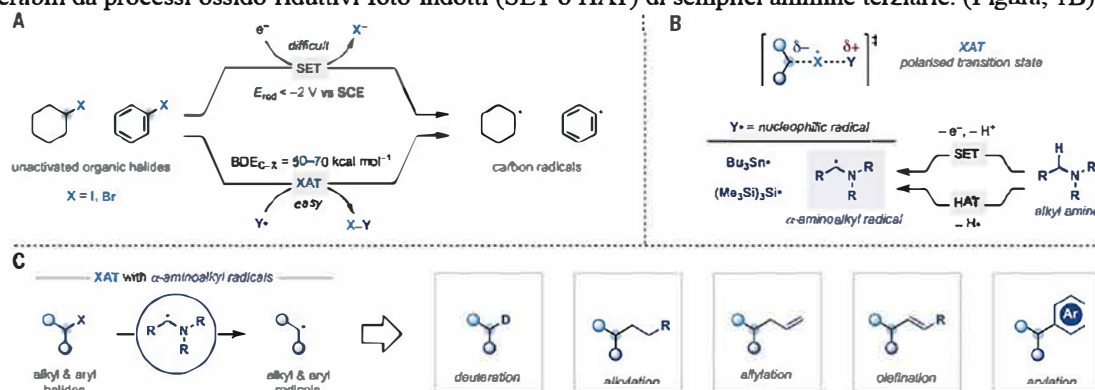


Figura 1. A: modi per attivare alogenuri alchilici e arilici; B: preparazione di radicali α -amminoalchilici e possibile stato di transizione del meccanismo XAT; C: possibili trasformazioni impiegando alchil e aril radicali.

In particolare, l'ottimizzazione della metodologia permette la sintesi di svariati composti ad alto valore aggiunto con formazione di nuovi legami $\text{C}(\text{sp}^3)\text{-C}(\text{sp}^3)$ (Giese-type idroalchilazione di olefine tra queste anche deidroalanine e allilazione), $\text{C}(\text{sp}^3)\text{-C}(\text{sp}^2)$ (Heck-type olefinazione e arilazione). In conclusione, questa strategia impiega, convenientemente, gli alogenuri alchilici e arilici non attivati, in una vasta gamma di trasformazioni redox per costruire legami carbonio-carbonio in condizioni "mild", catalitiche e con elevata chemoselettività.^[6] (Figura, 1C)

Il lavoro sperimentale è stato svolto presso il Department of Chemistry, University of Manchester, UK, sotto la guida del Prof. Daniele Leonori.

(1) a) *Photochemistry and Photophysics*. Balzani, V. Ceroni, P. & Juris, A, Wiley-VCH, 2014. b) *Photochemistry: Past, Present and Future* (Ed.: A. Albini), Springer, Berlin, 2016. (2) *Handbook of Synthetic Photochemistry*; Albini, A., Fagnoni, M., Eds.; Wiley-VCH, 2010. (3) a) Shaw, M. H., Twilton, J. & MacMillan, D. W. C. *J. Org. Chem.* 81, 6898–6926 (2016). b) McAtee, R. C., McClain, E. J. & Stephenson, C. R. J. *Trends Chem.* 1, 111–125 (2019). c) Crisenza, G.E.M., Melchiorre, P. *Nat Commun* 11, 803 (2020). (4) a) *Encyclopedia of Radicals in Chemistry, Biology and Materials* (Eds.: C. Chatgililoglu, A. Studer), Wiley-VCH, Weinheim, 2014; b) M. Yan, J. C. Lo, J. T. Edwards, P. S. Baran, *J. Am. Chem. Soc.* 138, 12692–12714 (2016). (5) J. D. Nguyen, E. M. D'Amato, J. M. R. Narayanan, C. R. J. Stephenson, *Nat. Chem.* 4, 854–859 (2012). b) Y. Shen, J. Cornella, F. Juliá-Hernández, R. Martin, *ACS Catal.* 7, 409–412 (2017). (6) T. Constantin, M. Zanini, A. Regni, N. S. Sheikh, F. Juliá, D. Leonori, *Science* 367, 1021–1026 (2020)