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- "From Regenerative Biology to Reconstructive Therapy"



Special Lecture:

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„Efficient Synthetic Routes to Biologically Active Carbazole  
Alkaloids”

**Monday, February 20, 2017**

**Lecture Hall M, 5 pm c.t.**

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### Abstract / Research Summary

Nature provides a broad range of structurally interesting carbazole alkaloids with various useful biological activities (*Chem. Rev.* **2012**, *112*, 3193–3328). Because of their pharmacological potential, carbazole alkaloids became attractive targets for organic synthesis. We have developed two highly convergent synthetic routes to the carbazole framework using either an iron(0)-mediated or a palladium(II)-catalyzed oxidative cyclization as key-step. Using our palladium(II)-catalyzed approach, we have developed an efficient route to 2-hydroxy-3-methylcarbazole which has served as crucial intermediate for a biomimetic synthesis of several pyrano[3,2-*a*]carbazole alkaloids. A novel domino Sonogashira coupling/Claisen rearrangement/electrocyclization reaction opened up a direct synthetic route to the biscarbazole alkaloids murrufoline A–D. Several annulation procedures for the pyran ring have been exploited for total syntheses of numerous pyranocarbazole alkaloids.

The versatility of the synthetic methodology and most recent applications will be discussed.