ARYLATION OF $\beta,\gamma$-UNSATURATED LACTONES BY A HECK-MATSUDA REACTION: AN UNEXPECTED ROUTE TO ARYL Diazene BUTENOLIDES AND PYRIDAZINONES

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Figure 1S. Compound 3; $^1$H NMR (500 MHz, CDCl$_3$).

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Dedicated to Professor Hans Viertler on the occasion of his 70th birthday and for his contributions towards the development of organic chemistry research in Brazil.
Figure 2S. Compound 3; $^{13}$C NMR (125 MHz, CDCl$_3$).

Figure 3S. Compound 4; $^1$H NMR (500 MHz, DMSO).
Arylation of $\beta,\gamma$-unsaturated lactones by a Heck-Matsuda reaction

Figure 4S. Compound 4; $^{13}$C NMR (125 MHz, DMSO).

Figure 5S. Compound 6a; $^1$H NMR (500 MHz, CDCl$_3$).
**Figure 6S.** Compound 6a: $^{13}$C NMR (125 MHz, CDCl$_3$).

**Figure 7S.** Compound 6b: $^1$H NMR (500 MHz, CDCl$_3$).
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**Figure 8S.** Compound 6b; $^{13}$C NMR (125 MHz, CDCl$_3$).

**Figure 9S.** Compound 6c; $^1$H NMR (500 MHz, CDCl$_3$).
Figure 10S. Compound 6c: $^{13}$C NMR (125 MHz, CDCl$_3$).

Figure 11S. Compound 6d: $^1$H NMR (500 MHz, CDCl$_3$).
Arylation of $\beta,\gamma$-unsaturated lactones by a Heck-Matsuda reaction

Figure 12S. Compound 6d; $^{13}$C NMR (125 MHz, CDCl$_3$).

Figure 13S. Compound 6e; $^1$H NMR (500 MHz, CDCl$_3$).
Figure 14S. Compound 6e: $^{13}$C NMR (125 MHz, CDCl$_3$).

Figure 15S. Compound 6f: $^1$H NMR (250 MHz, CDCl$_3$).
Arylation of β,γ-unsaturated lactones by a Heck-Matsuda reaction

Figure 16S. Compound 6f; $^{13}$C NMR (62.5 MHz, CDCl$_3$).

Figure 17S. Compound 6g; $^1$H NMR (500 MHz, CDCl$_3$).
Figure 18S. Compound 6g: $^{13}$C NMR (125 MHz, CDCl$_3$).

Figure 19S. Compound 6h: $^1$H NMR (500 MHz, CDCl$_3$).
Arylation of β,γ-unsaturated lactones by a Heck-Matsuda reaction

Figure 20S. Compound 6h; $^{13}$C NMR (125 MHz, CDCl₃).

Figure 21S. Compound 6i; $^1$H NMR (500 MHz, CDCl₃).
Figure 22S. Compound 6i: $^{13}$C NMR (125 MHz, CDCl$_3$).

Figure 23S. Compound 6j: $^1$H NMR (500 MHz, CDCl$_3$).
Arylation of $\beta,\gamma$-unsaturated lactones by a Heck-Matsuda reaction

Figure 24S. Compound 6j; $^{13}$C NMR (125 MHz, CDCl$_3$).

Figure 25S. Compound 6k; $^1$H NMR (500 MHz, CDCl$_3$).
Figure 26S. Compound 6k: $^{13}$C NMR (125 MHz, CDCl$_3$).

Figure 27S. Compound 6l: $^1$H NMR (500 MHz, CDCl$_3$).
Figure 28S. Compound 6l: $^{13}$C NMR (125 MHz, CDCl$_3$).