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# 3-Bromo-9-(4-fluorobenzyl)-9*H*-carbazole

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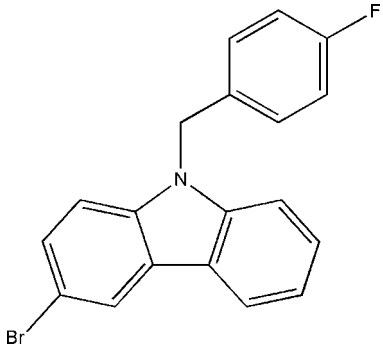
Key indicators: single-crystal X-ray study; $T$ = 113 K; mean $\sigma$(C–C) = 0.005 Å; $R$ factor = 0.032; $wR$ factor = 0.070; data-to-parameter ratio = 12.9.

The title compound, $C_{19}H_{13}BrFN$, was synthesized by *N*-alkylation of 1-chloromethyl-4-fluorobenzene with 3-bromo-9*H*-carbazole. The carbazole ring system is essentially planar (r.m.s. deviation of 0.024 Å for the non-H atoms) and forms a dihedral angle of 88.2 (3)° with the benzene ring.

## Related literature

For a similar structure, see: Huang *et al.* (2007). For the synthetic procedure, see: Duan *et al.* (2005*a*,*b*).




## Experimental

### Crystal data

$C_{19}H_{13}BrFN$
$M_r$ = 354.21
Orthorhombic, $Pna2_1$
$a$ = 17.407 (4) Å
$b$ = 15.068 (3) Å
$c$ = 5.5865 (11) Å
$V$ = 1465.3 (5) Å$^3$
$Z$ = 4
Mo $K\alpha$ radiation
$\mu$ = 2.81 mm$^{-1}$
$T$ = 113 K
0.18 × 0.12 × 0.08 mm

### Data collection

Rigaku Saturn diffractometer
Absorption correction: multi-scan (*CrystalClear*; Rigaku/MSC, 2005)
$T_{min}$ = 0.632, $T_{max}$ = 0.806
9581 measured reflections
2577 independent reflections
2294 reflections with $I > 2\sigma(I)$
$R_{int}$ = 0.050

### Refinement

$R[F^2 > 2\sigma(F^2)]$ = 0.032
$wR(F^2)$ = 0.070
$S$ = 0.99
2577 reflections
199 parameters
1 restraint
H-atom parameters constrained
$\Delta\rho_{max}$ = 0.43 e Å$^{-3}$
$\Delta\rho_{min}$ = −0.69 e Å$^{-3}$
Absolute structure: Flack (1983), 1139 Friedel pairs
Flack parameter: 0.004 (12)

Data collection: *CrystalClear* (Rigaku/MSC, 2005); cell refinement: *CrystalClear*; data reduction: *CrystalClear*; program(s) used to solve structure: *SHELXS97* (Sheldrick, 2008); program(s) used to refine structure: *SHELXL97* (Sheldrick, 2008); molecular graphics: *SHELXTL* (Sheldrick, 2008); software used to prepare material for publication: *SHELXTL*.

Supplementary data and figures for this paper are available from the IUCr electronic archives (Reference: GK2211).

## References

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