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Any type of cancer presents an insidious risk to life. But the uncontrolled growth of a tumour inside the brain — the organ that makes us who we are — creates an extraordinarily potent threat to our being. Despite dramatic advances in treatments for many other malignancies, a diagnosis of brain cancer still carries the high likelihood of death within five years (see page S40).

Efforts to help people to survive this disease for longer are advancing on several fronts. Researchers are learning more about the genetic differences between brain tumours — knowledge that should lead to the development of new therapies (S54). Already, such insights have led researchers to realize that brain cancers in children and adults, despite having superficial similarities, are distinct conditions (S56).

Although family history plays a part, the factors that affect a person's chance of developing brain cancer are still largely unclear (S50). The latest findings hint that several health conditions — including allergy, diabetes and chickenpox — lower the risk. To gain further insight into brain cancer without opening up the skull, researchers are modelling the disease both mathematically (S52) and by creating cerebral organoids in the laboratory (S48).

Cancer immunotherapy — the darling of oncology research of the past few years — is beginning to show promise in treating brain tumours (S42). Innovative therapies that use lasers or electric fields offer further rays of hope (S59). And researchers are working on ways to transport drugs across the blood–brain barrier (S46). Some also think that doctors will have more success in tackling brain cancer if they pay attention not just to tumour biology but also to neurological symptoms (S45).

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Herb Brody

Chief supplements editor

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