seeds[15]. Substituting 'sperm' for 'pollen', one immediately sees the overlap with issues discussed in the adder example. Botanists and zoologists would benefit from more cross-pollination concerning these issues.

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Angiogenic factor

SIR — Platelet-derived endothelial cell growth factor (PD-ECGF), a protein of relative molecular mass 45,000[1], stimulates endothelial cell growth and chemotaxis *in vitro* and angiogenesis *in vivo*. It lacks a hydrophobic signal sequence and is not a classical secretory protein[2]. We have isolated cDNA clones for human thymidine phosphorylase (dThdPase) which catalyses the reversible phosphorolysis of thymidine, deoxyuridine and their analogues to their respective bases and 2-deoxyribose 1-phosphate, and is essential to nucleic acid metabolism because it regulates the availability of thymidine. We find that 120 amino acids of human dThdPase are identical to the sequence of PD-ECGF.

We have designed primers for the polymerase chain reaction (PCR) based on the peptide sequence data derived from *Achromobacter lyticus* protease I (lysyl endopeptidase) fragments of purified human dThdPase[3]. PCR products from amplification of the human liver cDNA were subcloned and sequenced. Amino-acid sequences were deduced from nucleotide sequences of the longest clone (288 base pairs) and compared with sequences in the NBRF amino-acid databank. This sequence was 100% identical to the sequence of PD-ECGF (residues 149–244). The amino acid sequence of all four lysyl endopeptidase fragments of dThdPase could be aligned with the amino acid sequence of PD-ECGF (residues 125–139, 140–157, 158–178 and 236–244, respectively). Our data indicate that residues 125–244 of PD-ECGF are identical to the sequence of dThdPase. The amino-acid sequence of the human dThdPase clone is 61.9% homologous to the sequence of *Escherichia coli* dThdPase. The total amino-acid sequence of *E. coli* dThdPase[4] has 39.3% homology with PD-ECGF[2]. Amino-acid sequences of the putative thymidine binding site on *E. coli* dThdPase[4] are very similar to the sequence of PD-ECGF. Ishikawa *et al.*[2] reported that there is only one copy of the PD-ECGF gene in the human genome. PD-ECGF and human dThdPase thus seem to be derived from the same gene, which should help to elucidate how PD-ECGF works as an angiogenesis factor.

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Pulsar planets

SIR — As recently pointed out[1], planets are expected to form around a millisecond pulsar such as PSR1257+12 (ref. 2) if the pulsar originally had a binary companion that was tidally disrupted and formed a disk around the pulsar. The planets could then have condensed out of the disk in ways similar to that which took place in the solar nebula[1]. But it has been suggested[1] that the disruption of the (non-degenerate) companion of the pulsar was triggered by the evaporative heating and envelope expansion produced by the irradiation by the pulsar. Here I point out that another way for obtaining a millisecond pulsar surrounded by a massive disk is provided by our white dwarf plus neutron-star merger model for the formation of single millisecond pulsars[3].

Close binaries consisting of a massive ($\gtrsim 0.7\ M_\odot$) white dwarf and a neutron star do exist: PSR0655+64 is an example. Although the orbital period of this system (about 24 h) is too long to cause it to merge (due to gravitational radiation losses) within a Hubble time, such systems are also expected to be formed with shorter orbital period[4]. They are the end products, after a phase of common envelope evolution, of B-emission X-ray binaries in which the Be star had a mass ≤ 6–$8 M_\odot$ (refs 4,5). When a white dwarf plus neutron-star binary has an orbital period ≤ 15 h, it will merge by gravitational radiation losses within a Hubble time.

This is expected to happen to a considerable fraction of such systems[4,5]. When the orbital period has decreased so far that the white dwarf begins to overflow its Roche lobe, the resulting mass transfer is, for white dwarf masses $\gtrsim 0.7\ M_\odot$ (and for an adopted neutron star mass of $1.4\ M_\odot$), unstable and will cause the white dwarf to be completely disrupted on its dynamical timescale (seconds) and to form a disk around the neutron star that contains the orbital angular momentum of the binary, which is about 6×10^{50} g cm^2 s^{-1}. (The instability of the mass transfer is due to the steepness of the mass–radius relation of massive white dwarfs[3].) The neutron star will in most cases already be older than about 10^8 yr when this happens, and its magnetic field will have partly decayed[4]. The accretion of a small fraction of the white dwarf matter (about $0.05\ M_\odot$) is then sufficient to spin it up to a period of the order of milliseconds. The result will be a millisecond pulsar surrounded by a massive disk of relatively heavy elements (C, O, Ne, Mg and heavier).

Planet formation in such a disk is then expected to proceed along lines similar to those outlined in ref. 1. The disk contains sufficient angular momentum and heavy elements (Si and heavier) to form several planets of Earth-like composition, having orbital radii and masses similar to those observed in PSR-1257+12 (ref. 2).

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