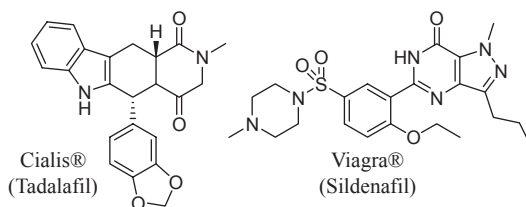
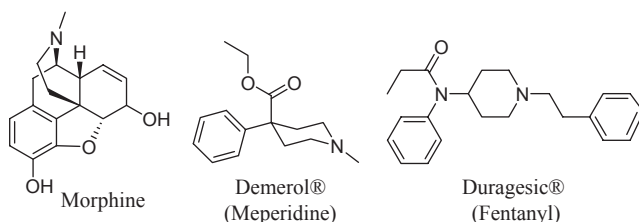


(Tadalafil)<sup>70</sup> are both PDE-5 inhibitors, but structurally, they are quite different (Figure 1.13). It is not immediately clear how these two compounds



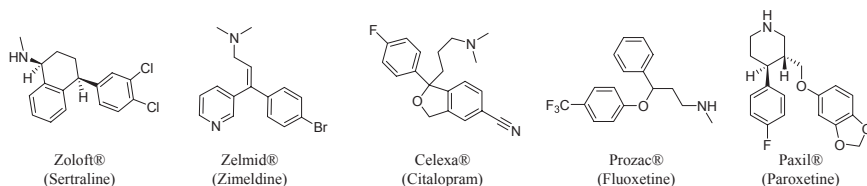
**FIGURE 1.13** The PDE-5 inhibitors Cialis® (tadalafil) and Viagra® (sildenafil) are structurally dissimilar even though they interact with the same macromolecular target.

are related or why they would serve the same biological function. The same is true of morphine,<sup>71</sup> Demerol® (Meperidine)<sup>72</sup> and Duragesic® (Fentanyl) (Figure 1.14).<sup>73</sup> While all of these compounds are  $\mu$ -opioid receptor agonists,



**FIGURE 1.14** Morphine, Demerol® (Meperidine), and Duragesic® (Fentanyl) are all  $\mu$ -opioid receptor agonists.

it would not be obvious to a casual observer that they share a common biological target. The selective serotonin reuptake inhibitors (SSRIs) Zoloft® (Sertraline),<sup>74</sup> Zelmid® (Zimeldine),<sup>75</sup> Celexa® (Citalopram),<sup>76</sup> Prozac® (Fluoxetine),<sup>77</sup> and Paxil® (Paroxetine)<sup>78</sup> represent distinct chemical classes that are not clearly related to each other (Figure 1.15). Given the breadth of



**FIGURE 1.15** Zoloft® (Sertraline), Zelmid® (Zimeldine), Celexa® (Citalopram), Prozac® (Fluoxetine), and Paxil® (Paroxetine) are all selective serotonin reuptake inhibitors (SSRIs) useful for the treatment of depression, but structural similarities are limited.